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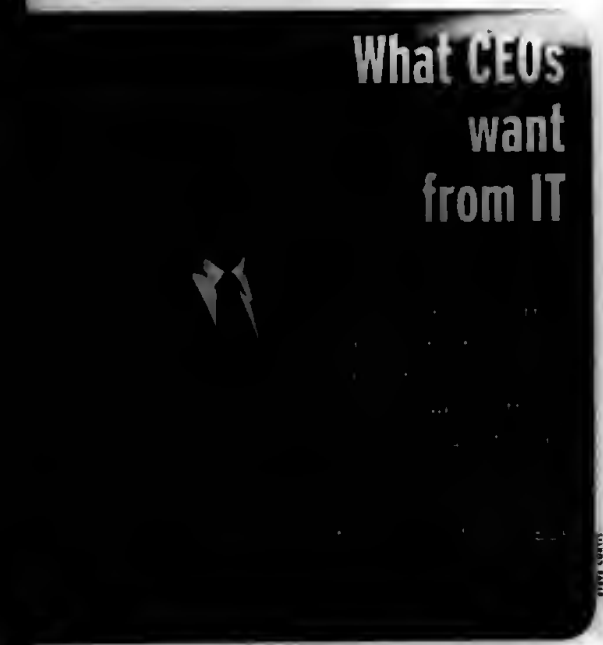
What CEOs want from IT

Sun tackles Java license confusion

SEEKS TO REIN IN EMBEDDED SYSTEMS MAVERICKS

By Carol Sliwa

SUN MICROSYSTEMS INC. last week posted to a private Web site a tentative plan that spells out how any company, organization or individual can participate in the Java standardization process — whether it's a licensee or not.

The move is aimed partly at reining in maverick vendors, such as Hewlett-Packard Co., that have been going their own way, making tools and virtual machines for Java in embedded devices. One such example is work on a "real-time" extension for the Java platform that could be a boon for embedded devices such as printers, medical monitors and automated teller machines.

The sometimes prickly relationship between Sun and some embedded vendors, as well as several other licensees, has been

Sun, page 16

WISH LIST

What Hewlett-Packard's embedded division and other vendors want from Sun:

- Nonlicensees of Sun's Java implementation should be able to use and participate in building the Java specification
- Use of the Java specification should be royalty-free
- Sun shouldn't control a contributing company's intellectual property rights
- Trademark should be available to nonlicensees
- Conformance testing should be open
- Sun shouldn't have ultimate power in the specification process

Policy networking gotchas

▸ *Time, resource commitments give users pause*

By Bob Wallace

HEAVY PREPARATION coupled with hidden management issues could make policy networking more trouble than it's worth for some users.

Policy networking provides the ability to prioritize applications when bandwidth is limited. The fast-emerging and hyped technology will be a hot topic at this week's Networld/Interop '98 conference as an option for users with congested networks who need to guarantee bandwidth to lifeblood applications.

Although users like the idea of giving key applications priority for bandwidth over less-critical ones, the effort required to prepare for and deploy policy networking is making it less appealing at second glance to some users.

"Policy networking isn't something you have to have," said Steve Lopez, network manager at the National Board of Medical Examiners in

Gotchas, page 121

NETWORLD INTEROP

Can you guarantee service? 120

Planning pays. Few do it. 120

Tool calculates net cost, payback. 121

IT investments pay off during mortgage boom

By Barb Cole-Gomolski and Julia King

IT'S DIVIDEND TIME for mortgage companies that have invested in IT.

Plummeting interest rates have flooded lenders with more business than they can handle. But unlike the last refinance binge in 1986 — when the average application processing time soared from 30 to 60 days — many lenders have been able to keep approval times to less than a week.

To cope with the huge increase in applications, Flagstar Bank in Bloomfield, Mich., installed several additional videoconferencing units for a total of 100 at its main office. Now, more loan officers can do "live deals" with about 475 mortgage brokers nationwide who either

Mortgage boom, page 16

ERP can magnify errors

By Craig Stedman

THREE MONTHS after A-dec Inc. went live with Baan Co.'s business applications last year, a curious thing happened: The dental equipment maker began running out of screws, fasteners and other manufacturing materials.

The culprit turned out to be incorrect bills of material that were entered into the Baan software for production uses and then passed along to inventory managers at Newberg, Ore.-based A-dec.

Other users are learning a similar hard truth about enterprise resource planning applications: Although the integrated nature of the software is tying companies together like never before, it can become a double-edged sword when errors are

ERP, page 14

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Users find costs and capabilities are starting to converge. Page 6

SECOND-GUESSING BAAN
Surprise loss adds to doubts about once-unassailable ERP vendor. Page 14

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The [illegible] count on lots of car sales, Ford dealer David Abatsis says. **Internet Commerce, page 51**

The great clash between CA and IBM in the systems management sector never happened. **Review Center, page 92**

IT pros — and cons. We talk to Brian Martin and other notorious computer criminals behind bars. **In Depth, page 101**

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YEAR 2000

Year 2000 threatens, but Bill Laberis wonders whether it will turn into a major disaster or just one more empty doomsday scenario. **40**

After letting Y2K happen, IT groups may see massive changes in how they're allowed to operate, Ed Yourdon writes. **89**

EXECUTIVE Briefing

News summary for senior managers

■CEOs must understand how to invest in technology and how to use it. Most are satisfied with the bang they get for their buck, according to a *Computerworld*/KPMG survey, but two-thirds don't feel comfortable evaluating technology or the jargon surrounding it and want their tech-heads to translate it better. With technology out of the back room and business driving many decisions, IT has to get on board and help. Page 84

■Packaged applications tie customers and suppliers to the same business process, smoothing operations, but only if all the data is right. Errors in intercompany systems can screw up both partners. Even if operations people adapt, errors creep into inventory and other back-end processes. Business managers need to monitor the process and let everyone know to watch for bugs in the machine. Page 1

■With interest rates at astonishing lows, mortgage companies are turning to technology to keep up with a flood of business. Videoconferencing and online loan applications speed the process, but not all lenders are on board. Unlike credit cards, mortgage applications require human intervention. New technology can overload them and the older systems they depend on. Page 1

■NCR is building privacy features into its data warehouse. The idea is that users can put identifiers on pieces of data — a Social Security number, for example — and define how that data can be used. That helps companies that want to distribute some information about customers but protect the rest. Page 6

■Retailers would love to link so tightly with suppliers that they can make joint plans on production, distribution and inventory. But a pilot project by Nabisco and Wegmans Food Markets took five months to synchronize business processes and way too much back-end processing to plan the shipment of products to stores. Page 43

■Health care companies are using data warehouses for more than claims processing. Some turn to warehouses to help outline plans for care; others plan pharmacy supplies and roll out health care plans for which they find a demand. They help doctors and hospitals know how their practices compare to others'. Page 43

■Retailers are using E-mail to promote themselves, but it's a fine line between useful marketing and spam. Page 51

■Computer-science enrollments are growing so fast, universities have trouble finding graduate assistants to help teach. New students grew up on video games, so they think computer science will be a snap; many are quickly disillusioned. Women are still a minority, and schools may be shooting themselves in the foot by misclassifying majors. Experience is still education, meaning no relief for the skills shortage is in sight. Page 104

What's in a database? Microsoft sales evidence

▸ *Court allows DOJ to check files in Redmond*

By Kim S. Nash and Patrick Thibodeau

AS THE GOVERNMENT opens its antitrust case against Microsoft Corp. this week, state and federal lawyers will bring to court sales and pricing evidence fresh from Microsoft's own databases.

Lawyers for the U.S. Department of Justice and 20 states visited the vendor's Redmond, Wash., headquarters last week with a court order allowing them to examine about 4G bytes of sales data stored in Microsoft's own SQL Server databases. Microsoft had earlier said the databases were too complicated and proprietary to reproduce, as the government requested several weeks ago.

TRIAL STARTS TODAY

The sales and pricing data is related to Microsoft's deals with PC makers and Internet service providers. It is key to the Justice Department's efforts to determine whether the vendor tied Windows licenses and prices to Web browser contracts.

In court papers, Microsoft has said that the government could gather the information needed by analyzing PC maker and Internet service provider contracts already submitted to evidence and then cross-referencing them with other publicly available data. But the government countered that that would take too much time.

A Microsoft spokesman said the company "stands ready to help" with the database examination.

Microsoft is fighting a similar request for sales data by Caldera Inc. in the Orem, Utah-based company's 2-year-old private antitrust suit against Microsoft.

By examining original data firsthand, the government gains more control, said Harvey Saferstein, an antitrust lawyer at Fried, Frank, Harris, Shriver & Jacobson in Los Angeles.

"I'd much rather have the ability to search through the databases myself," he said.

It isn't uncommon for opposing lawyers to be granted direct access to evidence at a company being sued, legal experts said.

Microsoft probably didn't exaggerate about the databases' complexity, said Joan Feldman, president of Computer Forensics Inc., an electronic evidence discovery firm in Seattle.

Even if it's an off-the-shelf package and not custom-built, a large database can become an unwieldy "mosh pit" as it grows and is managed by many different people, Feldman said.

But more important than replicating data en masse, she said, would be for the government to request copies of report templates and queries Microsoft has run against the databases, she said.

For example, Microsoft claims it didn't charge some PC vendors more and others less for Windows licenses based on whether they also accepted Microsoft's Web browser. But if the government uncovered a report template tracking that very statistic, that could be incriminating, she explained. Reports and queries are "where people usually get caught off guard" when trying to shield information from the opposing side, Feldman added. □

Court watch

MICROSOFT ANTITRUST UPDATE

- **Microsoft argued in court that it can't properly prepare for the trial, especially for countering testimony from two new government witnesses from Apple Computer and Sun Microsystems, in the time allotted. Outside court, Microsoft released a 43-page rebuttal to the charges that includes details and fresh E-mail snippets addressing the Apple and Sun issues.**
- **Microsoft's bid to delay the trial until Nov. 2 was denied.**
- **Judge Jackson approved the government's motion to keep friendly witness testimony under seal until the day before each witness is expected to testify.**
- **The Italian Antitrust Authority weighed whether to investigate Microsoft after a large nonprofit computing standards group there filed a complaint alleging anticompetitive acts in operating systems, GUIs, Web browsers, software suites and advertising space on PC desktops.**
- **Videotape from Microsoft CEO Bill Gates' deposition will be aired at the trial.**
- **Bristol Technologies and Microsoft argued in U.S. District Court in Bridgeport, Conn., over whether Microsoft should be compelled to give Bristol NT 5.0 source code while Bristol's antitrust suit plays out.**

SUN MICROSOFT JAVA LAWSUIT

- **The special master in Sun's lawsuit against Microsoft read all the documents that both sides have submitted and made recommendations on which are confidential. U.S. District Court Judge Whyte could rule on those suggestions as early as this week.**

FAQ: Domain name registration

The management and registration of top-level Internet domain names has been the topic of industry teeth-gnashing for some time. Why, many wonder, has one company been in charge of the whole process? Because the National Science Foundation gave Network Solutions Inc. in Herndon, Va., the contract to do it in 1992. But changes are afoot.

Q: What is the new plan for Net domain registrations?
A: Next March, selected retailers will be allowed to act as Internet domain registrars.

Q: Will Network Solutions still be involved?
A: Yes, it will still register .com, .org, .edu and .net addresses for an indefinite period, and it will also be the wholesaler that sells domain names to retailers.

Q: Will different retailers charge different fees to register names?
A: No, prices will be regulated.

Q: Who will be in charge of running the system?
A: A California-based, 19-member nonprofit organization called the Internet Corporation for Assigned Names and Numbers.

Q: Where will these 19 people come from?
A: That's still being hashed out.

Q: How does this affect foreign country domains and off-brand registrars for exotic domains such as .nu, .tv and .tm?
A: It doesn't — those will still fall outside the supervision of this body. — *Stewart Deck*

Gates outlines Microsoft's future priorities in memo to top execs

▸ *Motivating rich employees may be No. 1*

By Kim S. Nash

MICROSOFT CORP. CEO Bill Gates plans to improve handwriting and speech recognition and then add those features to Windows in the coming years, according to an E-mail memo to 200 top Microsoft executives and division managers last month.

Though Microsoft declined to release the memo, a spokeswoman paraphrased it, paragraph by paragraph for all 14 pages, last week.

NO COMMITMENTS

The E-mail didn't commit to specific products or timetables but was more of a big-think piece, the spokeswoman said.

Among Gates' other priorities are the following:

- Winitone (also called Windows Tone): The idea that PC services should work all the time and be available to users through many hardware devices linked to the Net or other networks, similar to how the phone dial tone signifies a live network connection.
- Megaserver: Servers that let users compute anywhere as long as they can connect to the Net.
- Running like big iron: Microsoft must improve the scalability of its servers, Gates intoned. He didn't specifically mention Windows NT's failings in this realm. But he did say he wants to see enterprise customers whose needs grow still be able to use Microsoft's technology rather than competing technologies.

Gates also emphasized the need for a stronger, more coherent object-oriented development model that would let developers more easily build applications for the Web — and give developers a reason to ignore competing technologies such as Sun Microsystems Inc.'s Java.

Perhaps the most important issue facing Microsoft, though, is how to keep smart, rich employees motivated to keep working hard.

"He highlights how that's an ongoing challenge and one that's key for the company," the spokeswoman said. Microsoft's chief financial officer also harped on that theme at a meeting with analysts in July. □

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Unix servers closing mainframe gap

▸ *Performance hike from chips, NUMA*

By Jaikumar Vijayan

UNIX SERVERS are beginning to look a lot more like mainframes. But it will be a while before they send Big Iron to the scrap heap.

Last week, several vendors — including Intel Corp., Hewlett-Packard Co., Compaq Computer Corp. and IBM — disclosed road maps of new 64-bit chips that promise to more than double Unix server performance by 2002.

Combined with technologies such as new 64-bit operating systems and dynamic partitioning, and scalability technologies such as Non-Uniform Memory Access (NUMA) and clustering, Unix servers today can handle applications that might otherwise have headed to mainframes, said Ralph Fusco, manager of technical services at Liz Claiborne Inc. in North Bergen, N.J.

SPEED THRILLS

Vendor	Chip	Scheduled availability	Expected clock speed
Intel	Merced	Late 1999	600 MHz
	McKinley	2001	1 GHz
HP	PA-RISC 8600	2000	560 MHz
	PA-RISC 8700	2001	About 1 GHz
Compaq	EV6	Early 1999	575 MHz
	EV7	Late 1999	About 1 GHz

As a result, information technology managers in mainframe shops are much more "likely to choose Unix or NT as the basis to build new applications or to extend and surround mainframe applications," said Jonathan Eunice, an analyst at Illuminata Inc. in Nashua, N.H.

Liz Claiborne, for instance, is migrating all of its core business applications from an IBM AS/400 server environment to HP Unix servers to handle growing business needs.

"For my money, [Unix] today offers a more flexible and responsive platform . . . and in the long term is a less expensive development environment" compared with mainframes, Fusco said.

Hollywood Entertainment Corp. in Wilsonville, Ore., used similar reasoning when deciding to move from Windows NT servers to three eight-processor Sequent Computer Systems Inc. NUMA Unix servers to handle its fast-growing business, said Tammy Lowe, director of information systems at the company.

"Mainframes weren't even in the ballpark" because of their up-front costs, she said.

But Unix servers don't quite cut it from a price/performance perspective, where production applications are tightly bound to mainframes or require lots of I/O, Eunice said.

"No matter how big a Unix box you want to run your application on, it still isn't OS/390" when it comes to running certain applications, said Dan Kaberon, Parallel Sysplex project manager at Hewitt Associates Inc., a human resources outsourcer in Lincolnshire, Ill.

The company has looked at off-loading some of its mainframe work — involving processing 401(k) retirement claims for more than 16 million participaots — to Unix servers. "But functionally, Unix servers didn't even come close," Kaberon said.

And the difference in cost between them turned out to be minimal once enough management and high-availability components were added to the Unix servers, he said.

Falling mainframe hardware prices and more flexible software options [CW, Oct. 5] also make it attractive for some companies to retain their applications on mainframes, especially at a time when Unix server costs have been climbing steadily.

For example, servers easily can cost more than $1 million.

"For my money, [Unix] today offers a more flexible and responsive platform."

– Liz Claiborne's Ralph Fusco

On mainframes, new applications may be added with low incremental costs and little or no increase in staff; said Raymond Neff, vice president of information services at Case Western Reserve University in Cleveland.

The university has consolidated more than 80 Novell Inc. NetWare servers and more than 12 Sun Unix servers onto its IBM S/390 mainframes.

The move helped lower administration and management costs and enabled the university to cut its IT staff by four people, Neff said. □

NCR tools add data privacy

By Stewart Deck

AT ITS RECENT user's group meeting in San Diego, NCR Corp. announced that it would begin to add tools and features to its Teradata data warehousing line that will let users add privacy guidelines to their consumer data.

"We've seen the growing emergence of consumer-data-privacy regulations coming from both the European Union and in [the U.S.] Congress," said Bob Henderson, vice president of scalable data warehouse program management at NCR. "And we want to make sure our customers will be in compliance with any general regulations and emerging standards."

To accomplish that, users will get new tools that provide the ability to put manageable indicators in each data field that let each data piece be tagged, showing how the consumer says it can and can't be used. Continuing in that vein early next year, NCR will provide new utilities for audit tracking and new extensions in meta-data services that provide more meta-data controls, which could add more privacy controls.

Carl Olofson, an analyst at International Data Corp. (IDC) in Framingham, Mass., said NCR is taking a different approach than its competitors are taking by connecting those capabilities to the database server itself. IDC is a sister company to *Computerworld*.

Most of NCR's competitors let the application itself handle privacy concerns — sorting out what data is kept in and what is kept out. Vendors usually separate how the database is used from how the database engine works. But NCR doesn't do that.

PROTECT AND SERVE

Guidelines for protecting consumer privacy in data collection:

- Tell how the data will be used
- Allow consumers to change incorrect data
- Give users the option to keep personal data from second or third parties
- Go to reasonable means to protect secure information

Source: Federal Trade Commission, Washington

"It's unusual to see a database sensitive to how the data is used," Olofson said. "They're providing the means to use market intelligence with appropriate privacy safeguards . . . building deep hooks into the database that makes it easier to do what their users need."

Joe Bruscato, chief architect for data warehousing at Anthem Blue Cross/Blue Shield Inc. in Indianapolis, said the new capabilities have the potential to make many users' lives easier. People who have needed that type of capability — such as health care providers and financial services companies — up to now have been able to add it only by "brute-force coding," Bruscato said.

Ed Schaider, an analyst at The Standish Group International Inc. in Los Gatos, Calif., said NCR was on the right track. "NCR has been a leader in warehousing and even though consumer privacy is ultimately the responsibility of the owner of the data, NCR is taking a responsible position" by providing those capabilities, Schaider said.

"There's a real tension between vendors desiring to know everything about customers and the customers' desires to keep things private," said Herb Edelstein, an analyst at Two Crows Corp. in Potomac, Md. "NCR is trying to devote some attention to the issue, which is good for consumers — whether people who buy the products will care remains to be seen."

But Tony Marshall, another Teradata user and a decision-support specialist at Hallmark Cards Inc. in Kansas City, Mo., said he doesn't need those features. "Right now, we don't have a lot of concerns about getting any more functionality about privacy," Marshall said. □

Notes 5.0 has big changes

A beta version of Lotus Notes 5.0 — including its dramatically new user interface — was demonstrated at several sessions of the Lotus Developer's Conference last week.

As Sue Drach, information technology team member at Western Resources Inc., sat in on one of those sessions, she jotted down a note: new user training.

Indeed, Notes 5.0 could require a substantial amount of training for end users.

The next generation of Lotus' groupware product has lots of extra functionality, including interfaces that can be customized, instant messaging, extended database- and Web-based searching and a portal-like opening screen.

After the preview, Drach said it seemed that "Notes 5.0 can be as complex as you want to make it, or as simple as you want to keep it," but it will take some getting used to.

Western Resources, a utility company based in Topeka, Kan., is moving users off CC:Mail and eventually will have 2,500 people on Notes.

Notes 5.0 is currently in its first public beta release; a second beta could be out by the end of the month, officials said.

The product is scheduled to be generally available by year's end, although a delay in the first release of the public beta had some observers wondering if Lotus will hit the deadline.

— Roberta Fusaro

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Gates: We'll add database to Windows

▸ *Microsoft bundling plan raises concerns about bulk, administration*

By Sharon Gaudin and Robert L. Scheier

INDUSTRY WATCHERS are seeing more troubles than advantages in Bill Gates' latest idea of embedding database functions into the Windows operating system.

Last week, Microsoft Corp.'s CEO and chairman told an audience of analysts and corporate users that the software company eventually will build database functions into its operating system, much as it added Web browsing and dial-up networking to Windows.

Microsoft already finds itself under fire from the government and competitors for bundling its Internet Explorer Web browser into Windows 98.

But several users and an analyst said they are worried that the database could add more bulk and administrative problems than it would solve.

"If you wanted to run a database on each machine maybe for developmental purposes, it might be interesting," said Ali Adamou, systems administrator at Concord, Calif.-based Concorde Solutions, the information technology arm of Bank of America. "For the average user, that just isn't necessary. As an administrator, I worry about NT being atable. Having something else, like a database, in there is just going to give me more stability problems."

"Oh, it's going to be huge. Database programs are memory hogs, and Windows takes up enough space on my machines as it is." – Paul Soares, Alden Buick Pontiac GMC

Gates, speaking at a question-and-answer session with Gartner Group Inc. analysts at Gartner's annual ITxpo in Orlando, Fla., called the database functions he wants added to Windows a "superset" that will sit over the file system, providing functions such as data storage and caching. Gates didn't say when that addition would be made, and Microsoft officials declined several requests for an interview on the subject.

"Anything applications depend on broadly should [be] in the operating system," Gates said.

The audience of thousands listening to the Q&A applauded Gates when he defended Microsoft's history of bundling new features into Windows. Gates said the antitrust suit against his company has caused "no change in what we're doing in product design."

But Dan Kusnetzky, an analyst at Framingham, Mass.-based International Data Corp., a sister company to *Computerworld*, said Microsoft is trying to throw too much into the soup.

"I wonder when it will dawn on Microsoft that they can't be everything to everybody," Kusnetzky said. "They're making it too big to go all the places they want to put it. . . . If somebody wants NT, they're going to get Microsoft's browser and Microsoft's Web server and now Microsoft's database. Where does it stop?"

Paul Soares, general manager and chief financial officer at Alden Buick Pontiac GMC in Fairhaven, Mass., said if he wants to use a database, he would rather go out and buy one.

"Oh, it's going to be huge," Soares said, adding that many users probably would have to upgrade servers, desktops and laptops to handle the new software. "Database programs are memory hogs, and Windows takes up enough space on my machines as it is." □

Users demand PC consistency

▸ *Vendors change models and components too fast; support costs money*

By April Jacobs

CORPORATE USERS want PC makers to commit to a guaranteed life cycle for components in desktop models. They say the dizzying pace of desktop upgrades is causing endless woes, such as the ensuing component-based incompatibility problems that cost too much time and money.

Despite efforts by some leading PC makers to keep their PC lines more stable by offering models for 12 to 14 months, corporate users remain frustrated with component changes within models over time. It doesn't help that the pace of model releases based on new chips has increased in frequency about 30% during the past two years, according to figures from Dataquest, a research firm in San Jose, Calif.

The issue isn't performance. "It seems like every six months we're hopping to a new CPU, [which] presents massive service and support problems," said Dave Geiver, senior technology officer at First Premier Bank in Sioux Falls, S.D.

Indeed, ongoing research conducted by Dataquest shows that corporate users — notoriously fickle when it comes to whom they buy PCs from — want longer life cycles because supporting multiple configurations of PCs costs more money than a standardized environment.

But even in a standardized environment, there are variations. For example, within one product family, models purchased at different times may contain different components and thus require operating system tweaks or different drivers to ensure they run properly.

Geiver said he's frustrated that his company has only about three months in which it can get PCs that are absolutely identical in the component configurations and peripherals.

Inconsistency among newer and older versions of PCs from the same maker recently led to problems between video cards on users' desks and essential remote control software the company uses. "We had PCs that couldn't view what was being controlled," Geiver said.

He isn't alone.

"Our latest PCs and their problems are related to device manager conflicts and [Accelerated Graphics Port] graphics," said Jim Snively, information technology manager at Sun Oil Co. He predicted that a good part of the PC support issues he has to deal with would go away if models could be stabilized for at least one year. His estimate on the time frame he has to secure identical-model PCs is far less: three to six months.

Vendors say they can guarantee that PC lines will be offered for a certain length of time. But, both vendors and analysts pointed out that components are more volatile. IBM and Round Rock, Texas-based Dell Computer Corp. said that although component consistency varies, they try to make sure compatibility issues are kept to a minimum and that they notify customers of changes before they make them.

The problem, IT managers said, is that tech support people have to spend extra time determining the exact configuration of the PC before they can even begin to solve the problem.

Dataquest analyst Martin Reynolds advised corporate buyers to anticipate PC life cycles, which range from three to four years, conservatively estimated — and plan new purchases accordingly, so they don't buy piecemeal too often.

Some ways users are trying to combat the issue is to limit the number of PC makers they deal with and plan purchase numbers ahead as much as possible.

Users' complaints aren't limited to short life cycles, though, said Roger Kay, an analyst at International Data Corp., a sister company to *Computerworld*. They also list obvious things such as lack of availability or inability to get PCs fast enough when they need them. Also at the top of the list are things such as out-of-the-box failures, poor service and "things like, 'We called for support and they couldn't help us,'" Kay noted. □

Frequency of new or upgraded PC announcements this year

Vendor	Number of times
Compaq Computer Corp.	Six
IBM	Five
Dell Computer Corp.	Three

Source: Computerworld research

Avoiding configuration instability

PC managers who can't get their suppliers to provide an unchanged version of their PCs for more than just a few months have the following options to ensure configuration stability, although all introduce their own costs:

- Buy extra PCs up front to ensure an identical supply of PCs or parts (taken from cannibalized extra systems) when needed later.
- Update drivers regularly across the whole company to ensure driver compatibility.

Most component makers use one driver for all variants within a family, so having the latest driver usually ensures consistent reliability.

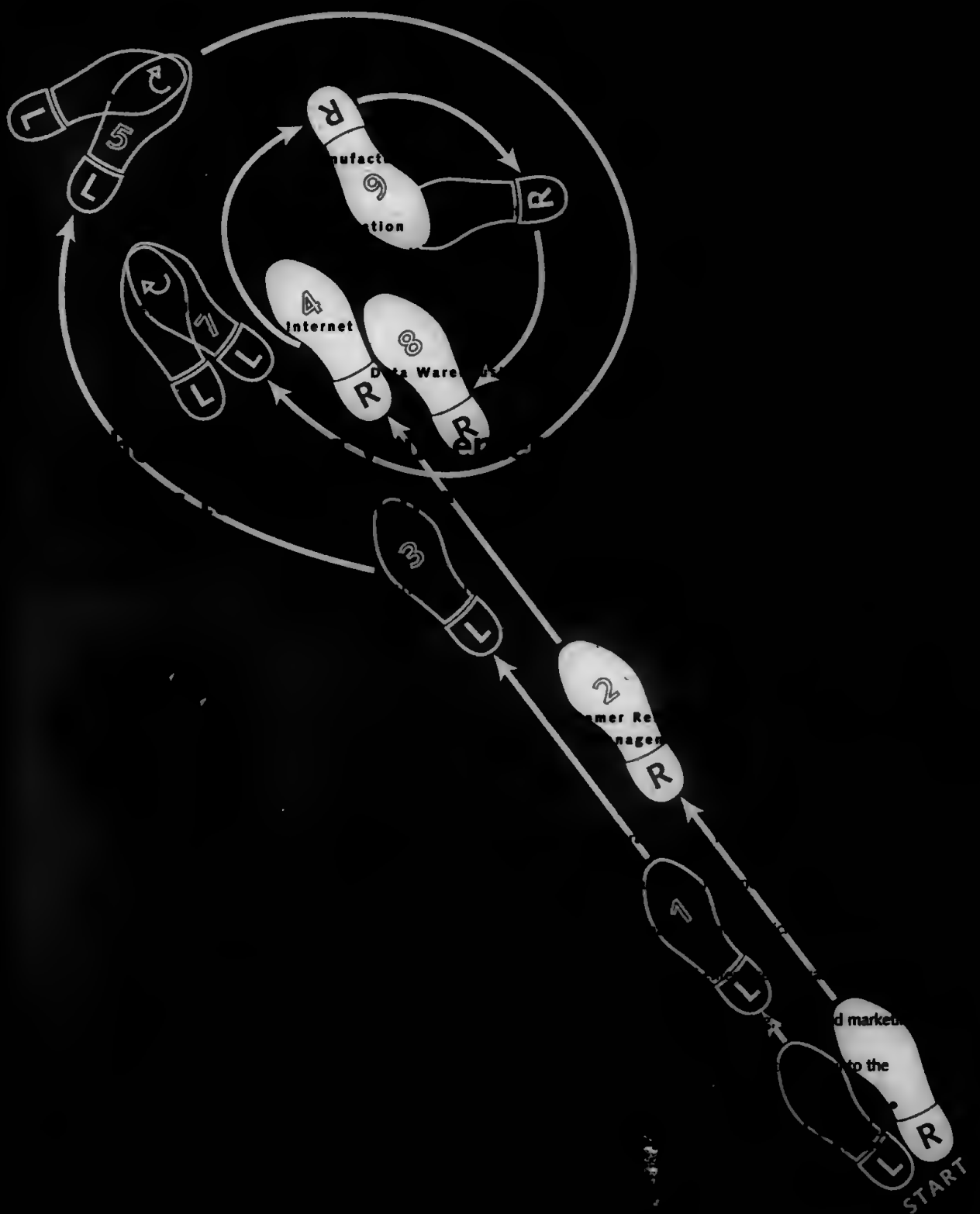
(Suppliers do tweak their components for cost savings, bug fixes and manufacturing availability, so it's nearly impossible to ensure that every chip on, say, a video card is the same over time even on the same model. It also costs PC makers too much to store components.)

This option may not work for companies whose homegrown programs work directly with drivers or hardware rather than to Windows application programming interfaces.

- Build PCs using off-the-shelf components, which tend to stay in stock longer as after-market items.

A small number of makers dominate each of the major PC components — motherboards, peripheral cards, drives and so forth — so it's possible to stay in touch with a manageable group of vendors to learn about upcoming changes.

— Colin Gramon


Internet
START

Bill raising H-1B visa cap expected to pass

▸ *House and Senate support it, but companies still edgy*

By Barb Cole-Gomolski

LEGISLATION THAT would nearly double the number of foreign workers allowed into the U.S. on H-1B visas has been revived in Congress and is expected to be approved.

After Sen. Tom Harkin (D-Iowa) used a procedural move to block the Senate from taking up the bill on Oct. 9, legislators last week were able to tack the measure on to the omnibus spending bill. Observers, including immigration attorneys who favor the bill and labor groups that oppose it, last week said they expect the measure to pass because it has broad support in the House and Senate and is favored by the White House.

The congressional wrangling is the latest in a series of ups and downs for the H-1B bill, which is supported by Silicon Valley but opposed by some labor groups. The bill would boost the cap on H-1B visas from 65,000 to 115,000 for the next two years and 107,500 in the third year. The visas are shared among several professionals, including information technology workers.

CRAZY RIDE

The roller-coaster ride is making Katie Grein, a recruiter at American Management Systems (AMS), a large systems integrator in Fairfax, Va., a little dizzy. AMS has been leaning on the H-1B program more heavily in the past year. "If this measure doesn't go through, this will really hurt us," Grein said. "We'll have to throw away resumes of competitive candidates because we won't be able to get them visas."

Observers said that if the bill doesn't pass, H-1B visas for fiscal year 1998-99, which began on Oct. 1, may run out as soon as December.

"This is making companies panic," said Sheela Murthy, an immigration attorney in Owings Mills, Md. As a result, she claimed that companies are "grabbing H-1Bs" for people who they may or may not hire.□

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OptiSystems

Symantec will buy Quarterdeck

By David Orenstein

SYMANTEC CORP. in Cupertino, Calif., which faces a tough fight for dominance of the rapidly consolidating desktop utilities market, plans to buy rival Quarterdeck Corp. in Marina Del Rey, Calif., in a $65 million deal.

"They are bracing for a major war with Network Associates," said Rob Enderle, an analyst at Giga Information Group in Santa Clara, Calif.

The makeup of Santa Clara, Calif.,-based Network Associates Inc. is itself the result of a string of acquisitions by McAfee Associates Inc., including Cybermedia Inc. Cybermedia is suing Symantec over an alleged copyright infringement in Symantec's Uninstall Deluxe product.

Enderle said Symantec may have wanted to buy Quarterdeck because it would then have an uninstall product without legal problems. Quarterdeck's uninstaller is called CleanSweep.

Quarterdeck has many talented programmers who could augment Symantec's development staff, Enderle said.

Quarterdeck recently posted losses, and its president, Curt Hessler, laid himself off in July in a cost-cutting move. The acquisition, approved by both companies' boards, is based on a price of 52 cents per share for Quarterdeck stock. It is expected to close next month.□

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FRANKLY SPEAKING

Zero-latency poppycock

FRANK HAYES

IT WAS COLD, RAINY and a long way from Orlando last week when the ghostly ticking of a stopwatch startled me from a midnight doze. Lightning flashed, thunder crashed, and in the darkness just beyond my desk lamp hovered an eerie figure with the watch in one hand and a notebook in the other.

"Awake finally, eh?" snapped the old man with an ethereal glow. "Good. Time to work. I am the ghost of Frederick Taylor. You know that name, my boy?"

"Sure," I said. "Mr. Time-and-Motion. The original efficiency expert. The Gartner folks are using your name to promote their 'zero-latency enterprise' idea at ITxpo this week in Florida."

"Indeed," he growled. "Listen to this!" And he waved a research note at me, with this single sentence glowing like fire:

"We speculate that, if the father of the time-and-motion study, Frederick Winslow Taylor, had access to computers and networks 90 years ago, there might have been a zero-latency enterprise sooner."

"Poppycock!" he snorted. "Slander! This zero-enterprise nonsense — "

"Zero-latency," I said. "The idea is — "

"The idea is to squeeze all the wasted time out of business processes, that's all," he fumed, pacing about the room a few inches above the floor. "Connect all your people and computers with fast networks, push information to them as soon as it's available, and you'll wipe out the delays that are supposedly slowing down your business."

The way to drive wasted time out of a business is to first understand what the work is.

"Aren't computers a little after your time?" I asked. "You died in — "

"1915. But I've been keeping up," he said. "You've missed the point, my boy, and so have these consultants. What are they telling you to do? Build the network. Give the users browsers and applications to send and receive information. And then leave it to the business managers to create strategies and policies and make the organizational changes to use these tools.

"Isn't that a *splendid* idea?" he snarled "IT people put their reputations on the line to implement endless piles of technology, and none of it is any good if the businesspeople don't come through with new ideas! If they don't — *when* they don't — and there's no benefit, it's IT that has spent the money, so IT takes the blame — again!"

He dangled his stopwatch before my face. "Do you see this, my boy? Do you know what I did with this? I spent hours, days, weeks examining what workers did. Factory workers, office workers, every sort of worker. I watched them, I clocked them, I got to know their work even better than they knew it.

"Then — and *only* then — did I tell them what to do differently. *That's* what made the difference. You can speed up the machines, speed up the messages, speed up anything you like. But until you know what the work is, you're wasting your time.

"Now, you tell your consultants and your IT people this," he said. "Even if I had computers and networks 90 years ago, I wouldn't have wasted time wiring up all those users until I knew exactly what they did, exactly how they did it, exactly why they did it and exactly how all that wiring was going to make them twice as efficient. *That's* how you drive wasted time out of a business.

"Otherwise you're wasting time and money. And it won't be long before you're visited by a creature more terrifying than any ghost, more damned than any lost soul — "

"The devil?" I guessed. "Freddie Krueger? Janet Reno?"

"Your CFO!" he snapped. "Farewell!"

And with that — and one final blast of thunder — he was gone.□

Hayes is Computerworld's *slightly shaken staff columnist. His Internet address is frank_hayes@cw.com.*

SHORTS

Wal-Mart alleges IT raid

Wal-Mart Stores Inc. last week filed a lawsuit against Amazon.com Inc. and its CIO, Drugstore.com Inc. and a venture capital firm for both, Kleiner Perkins Caufield & Byers, charging that they all violated the Arkansas Trade Secrets Act in recruiting and hiring away at least 10 employees with unique and intimate knowledge of its proprietary data warehousing, distribution and merchandising operation. The suit asks for an injunction forbidding them from utilizing any Wal-Mart systems knowledge or transferring that knowledge to other companies. Amazon.com and Drugstore.com could not be reached for comment. Kleiner Perkins Chief Financial Officer Mike Curry declined comment, saying he had no knowledge of the suit.

Nobel goes to *CW* award winner

The 1998 Nobel Prize for chemistry was awarded to John A. Pople and Walter Kohn for advances in quantum chemistry through their theories of computational development. In June, Pople won the 1998 Silicon Graphics Inc. IT Leadership Award for Breakthrough Science, part of the *Computerworld* Smithsonian Awards program. Pople, 73, is a professor at Northwestern University in Evanston, Ill. Kohn, 75, is a professor at the University of California at Santa Barbara.

Router flaw discovered

Cisco Systems Inc. last week confirmed that a flaw in its IOS routing software can enable hackers to see the last few lines of text a network administrator typed into the router. That would provide the password to log in to the router, but not necessarily the second "enable" password needed to make changes. Hackers could get that password only if the net administrator had typed in both the last time he or she logged in, which a Cisco spokesman called "pretty unlikely." Cisco posted workarounds and fixes on its Web site (*www.cisco.com*).

Web hosts organize

Web hosting companies that offer round-the-clock technical support, money-back guarantees and are at least a year old will be eligible for certification by the newly created Web Host Guild (*www.whg.org*). The Sunrise, Fla.-based association was started by a group of Web-hosting vendors that want to establish minimum service-level standards for their industry.

Baan offers NT bundle

At its BaanWorld '98 Europe conference in the Netherlands last week, Baan Co. announced a Windows NT-based bundle that combines its business applications with Microsoft Corp.'s SQL Server database, Exchange messaging server and Site Server electronic-commerce software. Monthly license fees range from $99 to $169 per user. Baan also released a set of application programming interfaces and versions of its software for IBM's AS/400 and System/390 machines.

Audio vendor sued

The Recording Industry Association of America (RIAA) last week sued Diamond Multimedia Systems Inc., a vendor of an Internet audio player in San Jose, Calif. The RIAA contends that Diamond's not-yet-released audio player, Rio PMP300, will contribute to the bootlegging of copyrighted songs because it doesn't include anticopying technology as required by the 1992 Audio Home Recording Act. Diamond's $200 product is one of several that support an audio compression standard called MP3, which is controversial because it lets users quickly send and receive CD-quality sound via the Net.

CONTRACT OF THE WEEK

Customer: Andersen Consulting, Chicago
Prime contractor: Cable & Wireless PLC, London
Terms: $300 million, four years
Highlights: Cable & Wireless will provide a 40-country voice and data network for ServiceNet, an Andersen Consulting joint venture with GTE Corp. The contract calls for worldwide IP service and a virtual private network for voice traffic. Also, 40,000 Andersen consultants will use the vendor's secure remote-access service.

Mac Office gets patch

Microsoft has issued a patch that will alleviate some glitches found when users run its Office 98 applications with Apple Computer Inc.'s Mac OS 8.5. Among the flaws are slow menu drop-downs and pagination and layout inconsistencies in some Word documents shifted between platforms. The patch is available free at Microsoft's World Wide Web site, located at: *www.microsoft.com/MacOffice*.

SHORT TAKES Nancy Markle was named CIO at Arthur Andersen & Co., the tax, audit and consulting company. She will be based in Sarasota, Fla. . . . Security Dynamics Technologies Inc. in Bedford, Mass., has unveiled security tools designed to help administrators assess and enforce security on Windows NT-based networks. . . . IBM has announced production of five kinds of high-volume chips using a patented silicon germanium process. The chips will reduce the size, weight and cost of wireless handheld devices.

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Bumpy road for Baan makeover

By Craig Stedman

FOR USERS OF Baan Co.'s applications, last week's surprise warning of a third-quarter loss underscored the tricky nature of the technology and business transitions that Baan is trying to make.

The red ink is the latest in a series of misadventures this year, as Baan turns most of its attention to midsize users and works to tie together its flagship back-office applications and a still-growing mix of acquired software.

The Dutch vendor just barely eked out a first-quarter profit and was criticized by Wall Street investors for its business dealings with firms controlled by co-founders Jan and Paul Baan. Jan Baan then stepped down as CEO in July. And the company's new BaanERP back-office software was delayed for nine months before it finally shipped last month (CW, Oct. 12).

"Baan had an excellent image before this all happened," said Norman Thomas, director of information systems at Trojan Technologies Inc. in London, Ontario. "I think they can rebuild that, but it's going to take time."

Like other application vendors, Baan focused too much attention on stock prices and "trying to hype up the industry to unrealistic heights," Thomas said. "And the bubble has finally burst."

But Trojan, a maker of water-disinfecting systems, remains a fan of Baan's back-office software and its plans to turn a wide range of stand-alone applications into an integrated product family that can still be managed separately. "We're on board with where they're going," Thomas said.

Keith Bearden, CIO at dental equipment maker A-dec Inc. in Newberg, Ore., said a single loss shouldn't deal a big blow to Baan's standing with users. "But I feel like Baan is trying to figure out what niche they can play in," Bearden said. "And they've had a lot of fluctuations in the [company]."

Baan's third-quarter loss is expected to be about $30 million, which is roughly the size of the profit that financial analysts had predicted for it. Baan said revenue should come in at about $190 million for the third quarter, compared with $173 million in the same period last year. However, last year's figure doesn't take into account several acquisitions made this year.

Lorenzo Martinelli, vice president of global strategic marketing at Baan, said about 30 big orders that the company hoped to get didn't materialize in the third quarter.

High-end users "are a little worried about making big financial commitments" in the current economic climate, he said.

But rivals such as SAP AG and J. D. Edwards & Co. still expect their financial results to live up to earlier forecasts. For example, SAP this month said both revenue and pretax profits should increase more than 40% in the third quarter. Its numbers are due out this week. Baan plans to report its loss next week.

Baan is "skating on pretty thin ice as far as being able to maintain the kind of reputation they need to be one of the top-tier vendors," said Jim Holincheck, an analyst at Giga Information Group in Cambridge, Mass.□

Intel invests in new DRAM chip

By Stewart Deck

INTEL CORP. announced last week that it would invest $500 million in memory chip maker Micron Technology Inc. to ensure it has an adequate supply of DirectRDRAM chips for its forthcoming 500-MHz Pentium II Katmai processors.

The deal gives Intel stock rights exchangeable for an approximately 6% share in Boise, Idaho-based Micron.

It will help speed Micron's development and production of DirectRDRAM, a next-generation dynamic RAM, to which Micron is very committed, said CEO Steve Appleton.

Sherry Garber, an analyst at Semico Research Co. in Phoenix, said three years of revenue decline in the DRAM market have caused most memory chip manufacturers to cut development costs. Normally, the memory industry tries to provide the cheapest memory chips it can, but DirectRDRAM will be expensive, Garber said, "because it will require new equipment. So Intel's trying to assist Micron with that investment."□

Calendar third-quarter financial results from selected companies

COMPANY	REVENUE 1997	REVENUE 1998	NET INCOME 1997	NET INCOME 1998
Apple Computer Inc.	$1.6B	$1.6B	($161M)	$106M
Baan Co.	$173.2M	$190M	$21.6M	N/A*
Compaq Computer Corp.	$6.5B	$8.8B	$517M	$115M
Intel Corp.	$6.2B	$6.7B	$1.6B	$1.6B
NCR Corp.	$1.6B	$1.6B	$9M	$25M
Rational Software Corp.	$75M	$95M	($65M)	$12M
SAP AG	$791.8M	$1.2B	$140.3M	N/A*
Seagate Technology Inc.	$1.9B	$1.5B	($240M)	($30M)
Sun Microsystems Inc.	$2.1B	$2.5B	$108M	$113M
Unisys Corp.	$1.62B	$1.78B	$50.9M	$95.6M

*Not available; not enough data to be released into the world

DOMINO THEORY

Operations that can be affected by errors in a bill of materials entered into an integrated application suite:

- Preparation of production work orders
- Assembly of raw materials
- Routing of products through manufacturing plants
- Tracking of materials and component inventories
- Logging of components used in case of recall

ERP can magnify errors

CONTINUED FROM PAGE 1

instantaneously spread around the system.

That's a big change for workers used to stovepipe applications that keep mistakes to themselves.

Steve Hunt, project manager for an ongoing rollout of SAP AG's R/3 applications at Purina Mills Inc. in St. Louis, said one of the top complaints users there have about R/3 is that "an error upstream can impact what they're doing farther down the line." For example, price errors on purchase orders can end up giving Purina Mills' financial analysts a distorted view of how much the maker of animal feeds is spending on materials, Hunt said.

WORTH THE RISK

That kind of product-costing data couldn't be pulled out of the company's 30-year-old mainframe applications, so R/3's tight integration is well worth the potential risks, Hunt said. And SAP has built in to R/3 controls that are supposed to catch some of the errors users make, he added.

"But the key is to be managing close enough to know when [mistakes] occur," Hunt said. "Someone from the business side needs to monitor the transactions."

At A-dec, the incorrect bills of materials didn't affect production because shop-floor workers knew the right number of devices to use and made the necessary adjustments, CIO Keith Bearden said. But the data that had been put into the Baan software wasn't changed, leaving A-dec's inventory managers to believe that the company had more materials on hand than it really did.

After the materials shortages surfaced, A-dec this spring put together a mandatory, two-day training class to show all of its employees how transactions flow through an integrated application suite such as Baan's.

"Mistakes have a much larger impact now," Bearden said, "and we recognized that people just didn't understand what [errors] can do to everyone else in the organization."

TEAMS ASSIGNED

A-dec also assigned a team of business users and information technology workers to map out a formal process for changing bills of materials, he added. And it sequestered a dozen product developers to clean up the data already in the system — a job that took eight weeks to finish.

Educating users on the problems that mistakes can cause throughout a company should be a top priority in planning for packaged application projects, said Jim Holincheck, an analyst at Giga Information Group in Cambridge, Mass. "You're changing the entire way your company operates," Holincheck said.

It took employees at Penwest Pharmaceuticals Co. in Patterson, N.Y., three months of using Baan's applications this year to come to grips with the fact that they're "not working in silos anymore," said Geoff Griebel, Penwest's director of IT.

"No matter what you do now, it impacts somebody else," he said. "And if you make a mistake, it gets sent out in real time."

To help workers cope with the added pressure while they tried to master the art of using Baan's software, several members of Penwest's project team were assigned to iron out mistakes and "reassure people that they're not going to get their heads cut off if they do something wrong," Griebel said. Some of that work is still going on today — 10 months after Penwest went live.□

& IT managers with new ERP packages debate whether to buy warehousing tools from same vendors. Page 81

THE FORECAST FOR MAXIMIZING
BUSINESS PERFORMANCE JUST
DRAMATICALLY IMPROVED.

HYPERION

Sun tackles license confusion

CONTINUED FROM PAGE 1

a cause for concern among end-user companies, which worry that any perceived chink in Java's armor may lead to fragmentation of the platform.

"I think every misstep or situation that appears to present a defection in the ranks or a difference of opinion is going to be masterfully exploited by the Microsoft consortia," said Redge Cook, senior director of information services at CompHealth Inc., a medical staffing and credentialing service company in Salt Lake City that's using Java for a major online application. "The primary supporters of Java all have a huge stake in making sure it doesn't go the way of Unix."

"If we are going to get 'write once, compile once, run everywhere,' we've got to get everybody on the same page," said John Melka, a senior systems engineer at NationsBanc Services Inc. in Chicago.

Two key sticking points for HP's embedded division and some other vendors have been licensing costs and intellectual property rights. Nonlicensees also haven't been able to participate in the Java specification process, despite their expert knowledge.

With the embedded forces forging ahead on requirements for a real-time extension to Java, there's some sense of urgency for Sun to clarify what has been a confusing standards process.

Embedded devices, widely seen as a huge potential market, need a real-time operating system to be able to predict when certain events need to take place. For instance, a gas pump must be in sync with the money counter — and can't take time out to send an inventory update to the home office in the middle of a customer transaction.

The lengthy wait for details about the new Java standards process has been particularly frustrating for some embedded Java vendors. For instance, Sun told the "real-time" Java working group in July, during a meeting at IBM's offices in Raleigh, N.C., that the process would be done by August.

The group, which includes HP, IBM, Microsoft Corp. and several smaller vendors of Java tools, hoped to finally get some clarification last Friday during a conference call with Sun.

Sun also participated in the real-time group and hopes to bring its members into the fold. "We're just hoping we can use the same brainpower and move it into our open process as it evolves," said Vicki Shipkowitz, a product line manager for the embedded Java platform.

UP IN THE AIR

It's unclear at this point whether Sun's newly proposed plan will appease that faction. Any nonlicensee that wants to take part in the standards process will have to sign a one-year, renewable "Java specification participation agreement," said a source who saw the plan.

With the specifics of that agreement still not spelled out in writing, embedded systems vendors are left wondering if the new process will be any better for them than the old one.

"We don't mind paying a membership fee. But why do we have to sign a license just to participate? How open is that?" said Wendy Fong, standards manager at HP's embedded software division. At press time, Sun declined a request for comment.

Even licensees will find some control issues to ponder. A Sun "process management office" will oversee development of noncore Java specifications, and that Sun group will select the companies or individuals that will lead the various Java specification processes, including writing the reference implementation and producing the test suites for it, said a source who has seen the plan.

Licensees participating in the process will have to pay a fee to defray the costs associated with collecting and maintaining an audit trail for PricewaterhouseCoopers, the firm selected to monitor the process, the source said. □

Steps in the new auditable Java standards process under discussion include:*

- **Participants — Java licensees or companies that sign a participation agreement can propose a new specification to Sun's process management office**
- **Sun's process management office will issue a call for experts from among the participants to select a group leader**
- **Expert group will work on and issue a specification draft. Participants can review draft for 30 days or more**
- **Draft will be posted to public Web site for comment**
- **Specification will be publicly released.**

* Process is subject to change based on feedback from Java licensees

HP readies upgraded virtual machine

Hewlett-Packard's embedded software division caused a commotion last spring when it parted company with Sun Microsystems by releasing its own Java virtual machine and signing up Microsoft as a licensee.

Now HP is on the verge of announcing the second version of its virtual machine for embedded systems. Company sources said a demonstration will be offered at the Embedded Systems West conference in San Jose, Calif., early next month.

HP sources said the new version will feature support for Sun's Abstract Windowing Toolkit — chunks of Java code that help developers create graphical user interfaces.

"So long as what they deliver to the marketplace is compliant and allows other Java products to run on top of it, that sounds like a perfectly reasonable approach. I think the concern was that their actions would act to fragment the marketplace," said Jonathan Schwartz, director of enterprise products at Sun's Java software division.

"I think HP will run into some problems when they start implementing the class libraries because there's a lot of work that needs to be done," Schwartz added. — Carol Sliwa

IT investments pay off during mortgage boom

CONTINUED FROM PAGE 1

lease or buy the same videoconferencing facilities from the bank.

In the first nine months of this year, Flagstar lent $13 billion in mortgages, compared with $3 billion for all of 1997.

"It's the fastest and most efficient way to have a loan approved because you're right online with the underwriter and any problems about credit reports or other documentation can be cleared up right then and there," said Jeanie Lutterbei, vice president of technology integration.

Flagstar, like many mortgage lenders, has further reduced cycle time by integrating its in-house loan origination system with automated underwriting systems at both Fannie Mae and Freddie Mac. That lets it get loan decisions in just minutes.

Manual processing can take up to two to three weeks while applicants, banks and the underwriters exchange paper documents by fax, mail or courier.

Lenders that exploit information technology can cut significant time and cost out of the loan approval process, said Richard Beidl, an analyst at The Tower Group in Newton, Mass.

"We estimate that 50% of loan applications can be approved in hours and processed within a week by using origination systems like Freddie Mac's and Fannie Mae's," Beidl said.

Still, observers said most banks have been slow to automate the mortgage loan process.

For instance, many lenders now allow customers to apply for a loan over the Internet. That helps to bring in business, but some parts of the mortgage business aren't ready to actually process loans via the Internet. Many banks are "still dealing with legacy back ends that just aren't going to go away anytime soon," said Chris Musto, a senior analyst at Gomez Advisors Inc. in Concord, Mass.

Unlike credit-card applications, which have been automated on the Web, mortgage applications are still very human-intensive, Musto said.

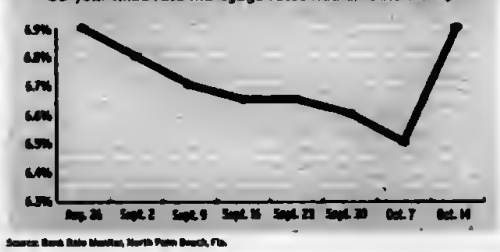
At Home Savings of America in Irwindale, Calif., a year-old loan origination application known as the Home Run system enables loan consultants to call on customers at their home or office and input all of their application information into a laptop computer. The data is then electronically transmitted to a sales center for processing using a combination of artificial intelligence, workflow and imaging technology.

"With the imaging and workflow technology, [loan officers] see only the information they need to see at a given time, while the system logs all of the files and keeps track of all the documents. It speeds things up and lets us add volume with fewer people," said Nancy Markle, former CIO at Home Savings, which was recently acquired by Washington Mutual Bank in Seattle. But there can be a downside to installing more technology during crunch times. Flagstar, for example, installed several dozen new PCs for new employees hired to handle the refinancing boom.

"What that does to IT is increase the load against the network. Plus you have inexperienced users with brand-new systems, so you have double-fold problems in the field," Lutterbei said. "We've hired 15 people just on our IS help desk to increase support." □

HOW LOW?

30-year fixed rate mortgage rates had an autumn dip



Source: Bank Rate Monitor, North Palm Beach, Fla.

Search for ready-to-use middleware continues

By Robert L. Scheier
ORLANDO, FLA.

CALL IT New Age middleware.

For years, information technology organizations have struggled to knit together applications they developed themselves. Now, they're finding it even harder to link off-the-shelf applications such as SAP AG's R/3 because they have access only to the package's application programming interfaces, not its source code.

"We're buying a lot of different applications," said Michael Sternberg, managing director of planning and architecture at the American Automobile Association (AAA) of Michigan and Wisconsin. "It's very difficult for people to integrate the applications."

ROBERT L. SCHEIER

Sternberg was at Gartner Group Inc.'s Symposium and ITxpo here last week, where a new breed of middleware vendor was promising what it calls "enterprise application integration."

NEW FOCUS

Like previous middleware, such as IBM's MQSeries, enterprise application integration tools let disparate applications work together. However, the focus of the new tools isn't on custom applications running mostly within a company, but on packaged software running across company boundaries.

Among the tools showcased at the Gartner event were the following:

■ **CrossRoute Alliance from Extricity Software Inc.** in Redwood Shores, Calif., formerly known as CrossRoute Software, requires Windows NT running on all the connected servers. It links to business partners over the Internet or an extranet. It also can use an electronic-data-interchange interface to link with Windows NT-based business partners that don't run Alliance.

■ **Active Software Inc.** in Santa Clara, Calif., provides adapters that link to packaged or legacy applications and translate the output of that system into events that other adapters understand. The resulting events are exchanged as messages through information brokers.

■ **WebMethods Inc.** is using the Extensible Markup Language standard to perform cross-company application integration over the Web. The Fairfax, Va.-based company sells the B2B Integration Server at prices starting at $19,995. Its recently announced WebMethods B2B for SAP R/3 was designed to link SAP R/3 with information systems at a customer's trading partners. Pricing starts at $149,995.

Sternberg said he is still shopping, hoping to find a tool that doesn't require expensive tweaking. All too often, he said, a vendor's pitch is "'Buy my package and do a lot of customization, or we'll do [the customization] for you.'"

He and other customers also are lobbying middleware vendors such as IBM to build standard interfaces between popular applications.

In an effort to ease users' interoperability problems, Microsoft Corp. last week announced that it is licensing Level 8 FalconMQ Server and will bundle it with Windows NT Server. The product, from Level 8 Systems, helps integrate Microsoft's Message Queue Server with IBM's MQSeries message-oriented middleware. □

Shell Canada discovered a great resource for putting a cap on IT costs.

Managing resources is what Shell Canada is all about. So when IT costs reached unacceptable levels — over $100 million annually — Shell decided it was time to do something about it.

Part of the problem was due to the lack of an integrated system throughout the company — operations were performed on a variety of systems across different divisions. But Shell found a solution: they replaced these systems with enterprise software by J.D. Edwards, integrated seamlessly throughout their core business functions.

According to Paul Reynolds, Manager Business Systems, Shell Canada, "The solotioo oot only met our busioess and user needs; it allowed us to reduce busioess transactioo processing costs from $17 million down to $9 million. Reducing costs has allowed us to direct IT dollars to areas that benefit the customer as well as enhance shareholder confidence."

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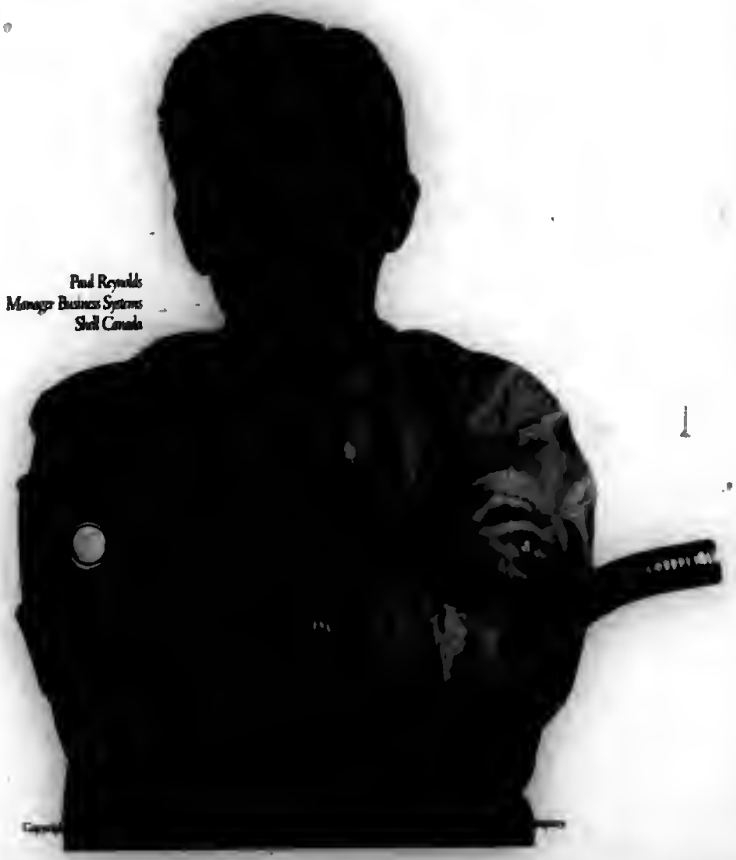


Paul Reynolds
Manager Business Systems
Shell Canada

PEOPLE Soft

Users turn to auditors to find gaps in 2000 plans

▸ *But an outsider's OK doesn't mean testing is unnecessary*

By Thomas Hoffman

MORE AND MORE companies are hiring third-party consultants and contractors to audit everything from rewritten code to their overall year 2000 project plans to make sure they've covered all the bases.

The reasons are clear: Because no one has ever gone through a year 2000 project before, companies want to make sure they've left no stone unturned as they seek to minimize any business disruptions or legal exposure.

The bad news is that some companies are taking a leap of faith in assuming, incorrectly, that a clean, independent audit means they don't have to test their systems. "That's an out-and-out fallacy," said Ann Coffou, an analyst at Giga Information Group in Norwell, Mass. "Just because the code was modified doesn't mean it will work," she added, so testing is mandatory.

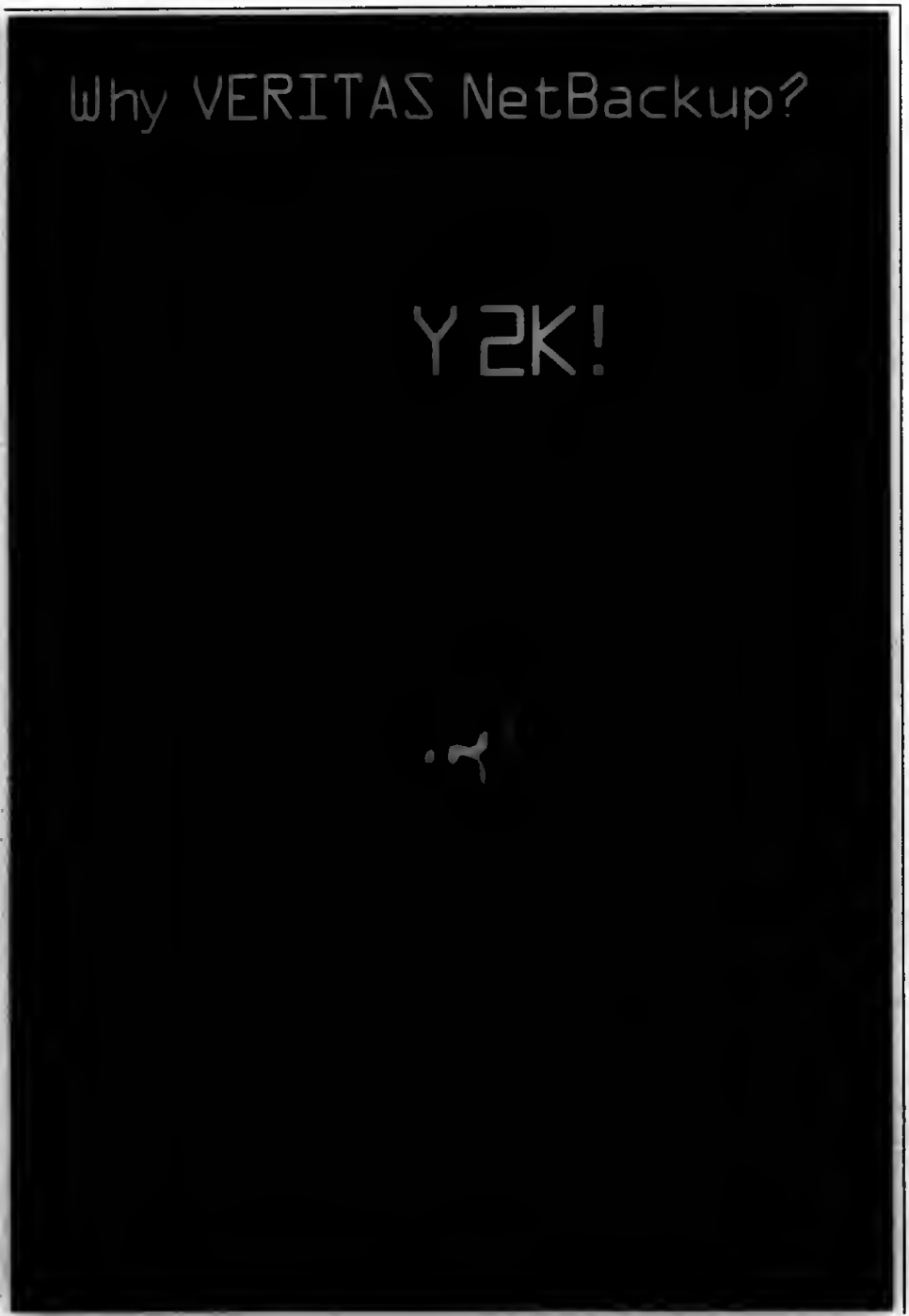
Others are simply trying to make their project plans unimpeachable. NAC Reinsurance Corp. in Greenwich, Conn., expects to select auditing vendors before the end of the month. The goal is to benchmark NAC's millennium project against those of similar-sized companies "to make sure that we're rigorous and managing our costs as much as possible," said Linda Kuppersmith, NAC's year 2000 compliance coordinator.

Similarly, Commonwealth Energy System in Cambridge, Mass., hired a consulting firm because "we wanted to have an outsider's viewpoint to make sure we weren't myopic about testing," said Brian Bossman, director of information technology at the utility. Commonwealth Energy, which serves 600,000 customers, has a "lean" year 2000 project office of three staffers.

The utility awarded the audit job to Edison, N.J.-based RCG Information Technology Inc., which helped immediately, Bossman said. Most of the utility's year 2000 project focus had been on fixing its core information systems, but RCG helped raise executive awareness about the business impact of embedded chips inside plant and transmission equipment, he said.

RCG identified 1,000 non-IT items that were potentially date-sensitive. And further review revealed that 50 to 60 embedded systems had to be fixed or changed, mostly by equipment makers, said Bob Johnson, an RCG consultant.

That due diligence has been particularly important to Commonwealth Energy. Even though the electric and gas power industries are highly regulated, overseers such as the Department of Energy "haven't provided as much guidance" as regulators such as the Securities and Exchange Commission and the Office of the Comptroller and the Currency have in the financial services sector, Bossman said. □



MOST THINK THEY'RE READY

What percentage of your systems do you expect will be fully year 2000-compliant by Jan. 1, 2000?

Base: 102 IT managers at companies with 500 or more employees

Source: Computerworld Information Management Group, Framingham, Mass.

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Microsoft to extend product capabilities

▸ *Developers eager to get upcoming features*

By David Orenstein

MICROSOFT CORP made several crowd-pleasing promises to developers at last week's Professional Developer's Conference, all designed to expand the capabilities of products from Office 2000 to Visual Studio to Windows NT.

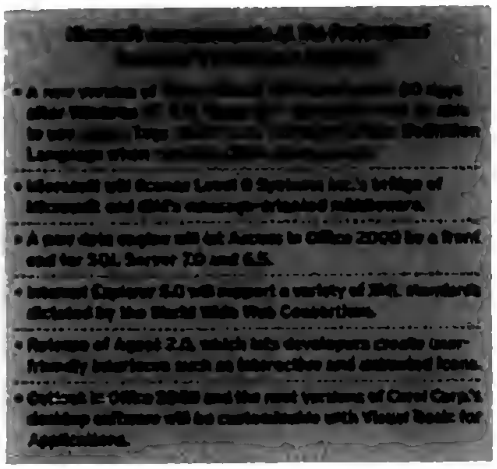
Those promises included the following: making Outlook customizable in Office 2000, making Access in Office 2000 a front end for SQL Server, licensing a third-party bridge to IBM middleware, providing additional support for Extensible Markup Language, releasing a new version of the user-friendly Agent tool and making development of distributed components in NT 5.0 easier (see chart).

Microsoft officials have said Office is due early next year, and they announced last week that the next version of Visual Studio will be released about 60 days after NT 5.0. No date for NT 5.0's debut has been given.

The announcements resonated well with users, who have been waiting for some of the capabilities that now seem to be on the way.

Among the announcements is that Microsoft will extend the Visual Basic for Applications programming language present in most Office applications to Microsoft Outlook in Office 2000. Dave Loring, lead analyst at New Jersey Transit Corp., a public bus and train system with 321,000 daily passengers, said developers might see great benefits from the ability to customize Outlook.

New Jersey Transit is building a system of electronic forms to automate procurement and other functions based on messages. Loring said the enhancement to Outlook will be very useful if it can access back-end data and business rules.



He cautioned that he would have to see the full product before determining how much it will help his efforts. "We're definitely really excited about this. The concept is right on the money," he said.

Michael Bishop, software development manager at Lathem Time Corp. in Atlanta, which makes workplace time and attendance systems, said he liked the concept of using Access in Office 2000 as a front end to manage SQL Server 7.0. Microsoft Data Engine will be a new tool to link the desktop and back-end databases.

"Access with SQL Server is a more scalable application than Access alone, and many developers believe they can be more productive in Access than in Visual Basic," said Larry Perlstein, an analyst at Dataquest in San Jose, Calif.

Bishop also praised the news that Visual C++ developers who use the next version of Visual Studio will be able to use simple tags called attributes rather than writing separate Interface Definition Language (IDL) when creating Component Object Model + components.

INTEROPERABILITY?

But in both cases, Bishop said, he wondered whether the Microsoft tools would still lack interoperability with other products and platforms. For example, Access won't be an effective front end for managing Oracle Corp. databases. Microsoft officials acknowledged, and Microsoft's IDL isn't compliant with the Common Object Request Broker Architecture.

Microsoft said it will license software from a third party, New York-based Level 8 Systems Inc., that bridges Microsoft Message Queuing (MSMQ) software to IBM's popular MQSeries message-oriented middleware.

Sukan Makmun, a vice president at BankAmerica Corp. in San Francisco, a heavy MQSeries user, said he's looking closely at bridging technologies between MSMQ and MQSeries because it will let messages flow between NT applications and software on otherwise incompatible platforms. □

A Web fast track to patient files

▸ *CIO performs secure and painless operation*

By April Jacobs
LOWELL, MASS.

AT LOWELL GENERAL HOSPITAL, smart cards, data mining and a browser-based application are solving a tough problem many hospitals face: how to give fast, secure access to thousands of medical records and patient data to those who need it.

By creating the Patient Web system, CIO Edward Bianco hoped to provide critical information to doctors and administrators without foisting specific hardware or expensive software upon them to do it.

NO INCOMPATIBILITY

"The project made good business sense, and people here love it. They're chasing me down the halls for it," Bianco said. "The really good part of it is that we don't have to worry about software incompatibilities or supporting remote hardware problems."

Patient Web lets authorized users access data as long as they have a computer with an Internet connection and a browser. Smart cards from Security Dynamics Inc. in Bedford, Mass., provide security for users logging on via the Internet, and data mining capabilities give physicians and administrators fast access to patient histories.

Until recently, that required a phone call to researchers in the medical records department and a wait of anywhere from 15 minutes to hours.

The system also means that Lowell General's 22-person information technology department doesn't need to support hundreds of users outside the hospital.

The data sits in a Microsoft Corp. SQL Server database, which provides information on everything from health insurance coverage to patient demographics. A SQL server, Java scripting and C++-based applications provide the infrastructure for data mining.

Using Patient Web, physicians can receive laboratory results, check office schedules and initiate appointments for tests. Information is presented to users via their browsers in a menu-based format.

For example, a doctor who wants to know if a patient's blood-related functions are improving can call up all lab results and track their changes.

The project took six months to complete, Bianco said. Three months of that time were spent gathering feedback from potential users to make sure the application would meet a very diverse set of needs.

THE REAL BENEFIT

"This cuts down on the time I have to spend waiting for paperwork and improves patient care," said Dr. Navin Popat, an early end user. Popat said he no longer has to call the medical records department to see a complete history, and he can analyze information more easily because of Patient Web's ability to produce cross-referenced data about a patient.

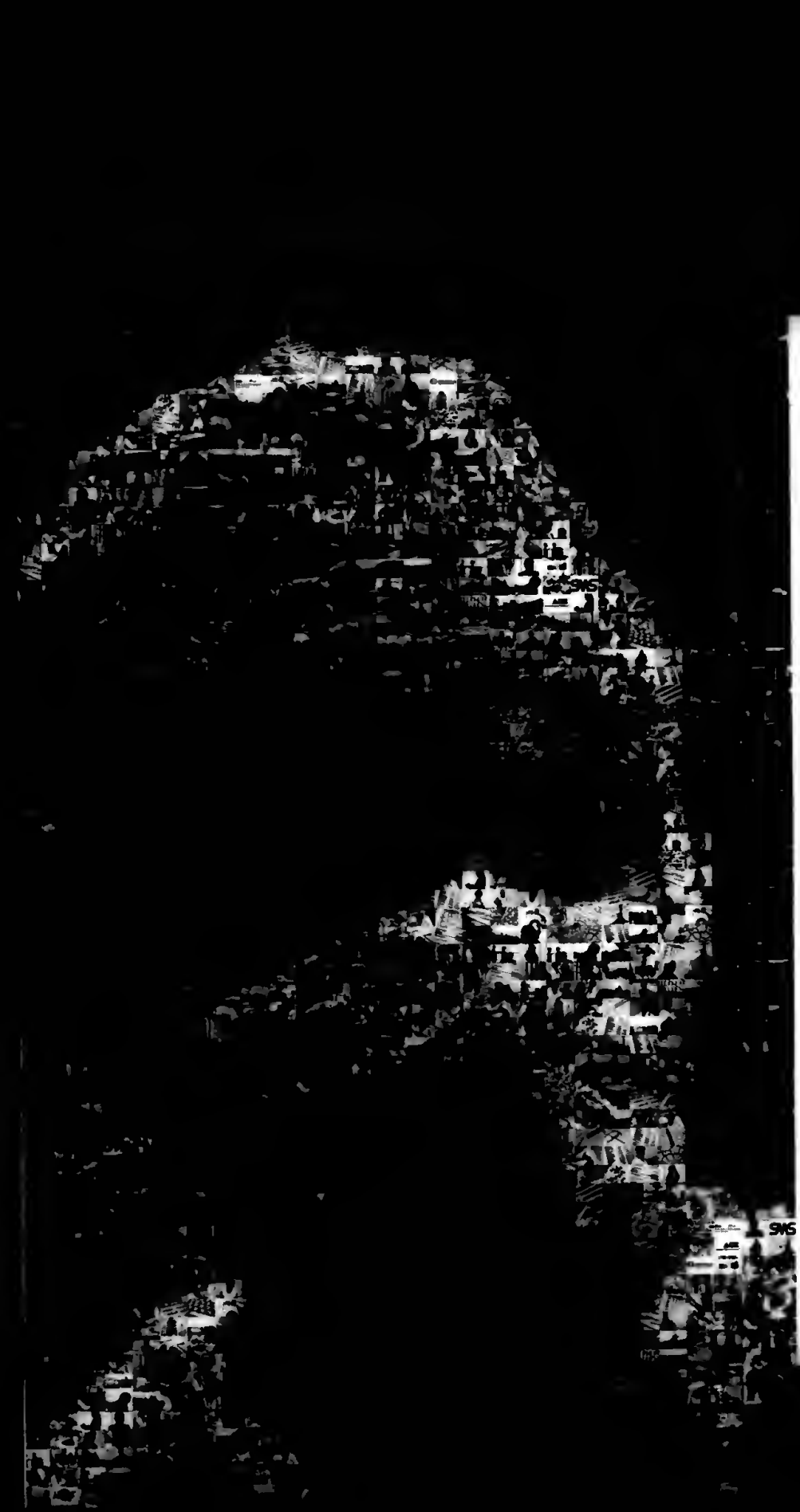
Icons and menu boxes provide a simple way to navigate through the system. Depending on the user's level of clearance, typing in a patient's name can provide anything from their address and health insurance provider to a detailed medical history.

Patient confidentiality is protected with stringent access standards. The smart cards give remote users a number-based password that changes constantly to keep information secure.

The new system has 140 internal and 10 external users. Bianco said he expects that number to grow to at least 700 now that the system is fully installed and outside doctors are being invited to join. □

ERIC POWELL

Lowell General Hospital's Edward Bianco created the Patient Web, where doctors and administrators access patient files via the Net using smart cards



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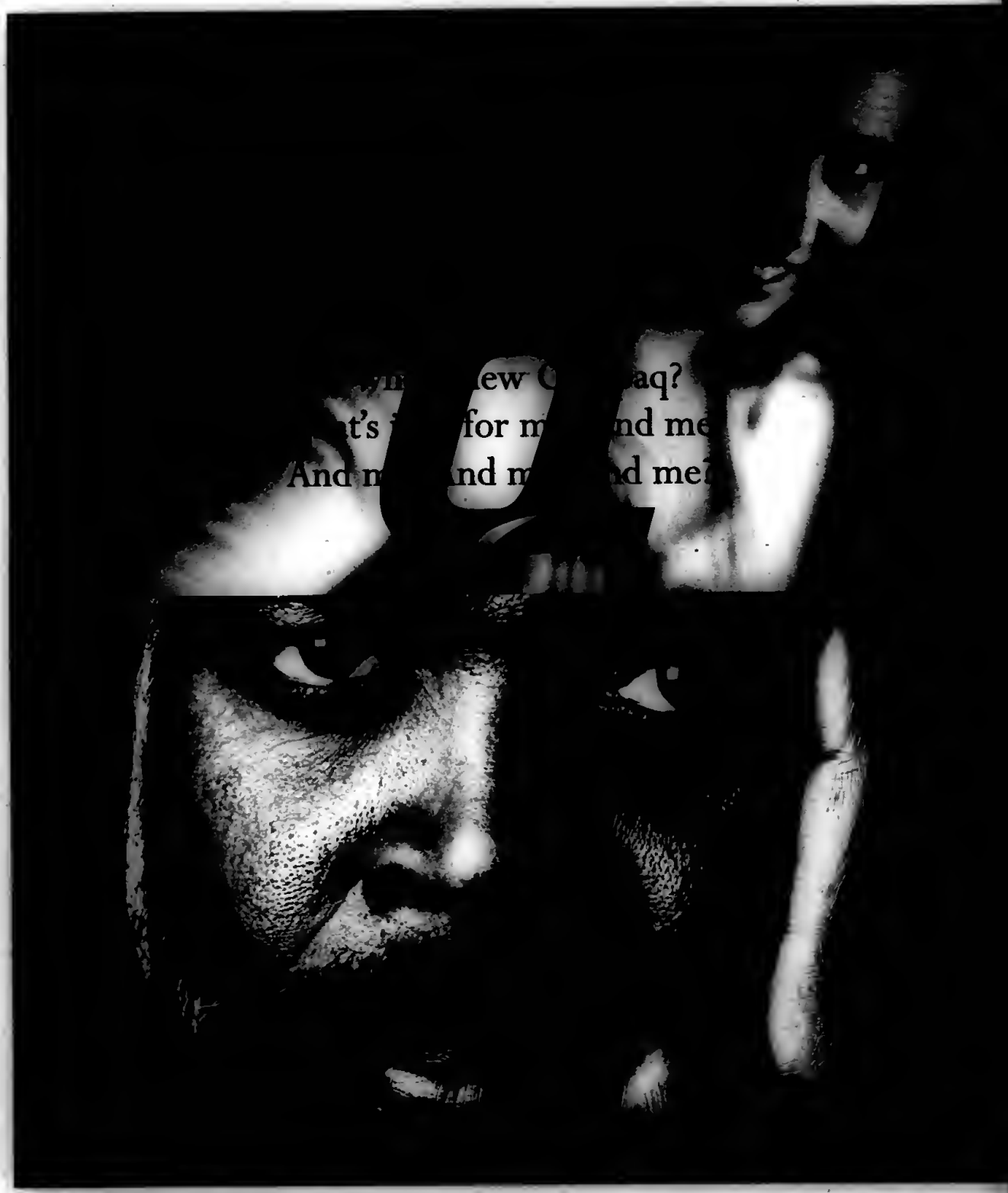

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Win 98 service pack may draw tepid response

▶ *Date-rollover glitch, modem driver issues will be addressed*

By April Jacobs

MICROSOFT CORP. plans to issue its first service pack for Windows 98 early next year, with added support for Universal Serial Bus modems, a common modem driver model for Windows 98 and NT 5.0, some security fixes and tools for easier administration.

The service pack is expected to address the date-rollover glitch that caught the company by surprise last month. The bug occurs only when a person boots up at the exact moment the PC's clock rolls over to a new day, causing the PC's calendar clock to move ahead erroneously.

Users don't appear to be clamoring for the service pack, in part because corporate adoption has been relatively slow.

That's because Windows 98 is new and isn't perceived as providing huge benefits over Windows 95, users and analysts said.

Windows 98 also is less buggy than Windows 95 was before the release of its first service pack, so most users don't have a critical need for the Windows 98 service pack, said John Dunkle, an analyst at Portsmouth, N.H.-based Workgroup Strategic Services Inc. Users are finding some benefits, however.

At Brewers Retail Inc. in Mississauga, Ontario, technical operations manager Larry Garden said a common driver model between Windows 98 and NT will eliminate the time spent writing to separate drivers.

How Windows 98 differs from Windows 95

- Support for Universal Serial Bus technology
- Faster boot time
- Multiple monitor support

Garden added that users with dial-up connections have fewer problems connecting to the network with Windows 98 than with Windows 95 — which is why he has them using it.

"With Windows 98, we can set up people's network properties on an individual basis based on the number they're dialing in from, so it's easier to prevent conflicts that cause time-outs," Garden said.

Other featured enhancements and fixes in Windows 98 include the following:

- Support for device bays, which allow peripherals such as hard drives to be swapped in and out of a PC more easily.
- Wake-on-LAN technology, which allows for remote start-up of a networked PC from a low-power state for upgrades and maintenance.
- Fixes for an Internet Explorer security issue, which prevents a script running in one Web browser window from affecting other windows running simultaneously.

The Explorer security issue involved the ability of malicious script in one browser window to potentially cause problems for script in another window if both were running at the same time, according to Microsoft spokeswoman Kim Akers.

- Also included is support for extended characters in Visual Basic file names, the ability to stores files more quickly and the ability to have dial-up connections over Asynchronous Transfer Mode networks. □

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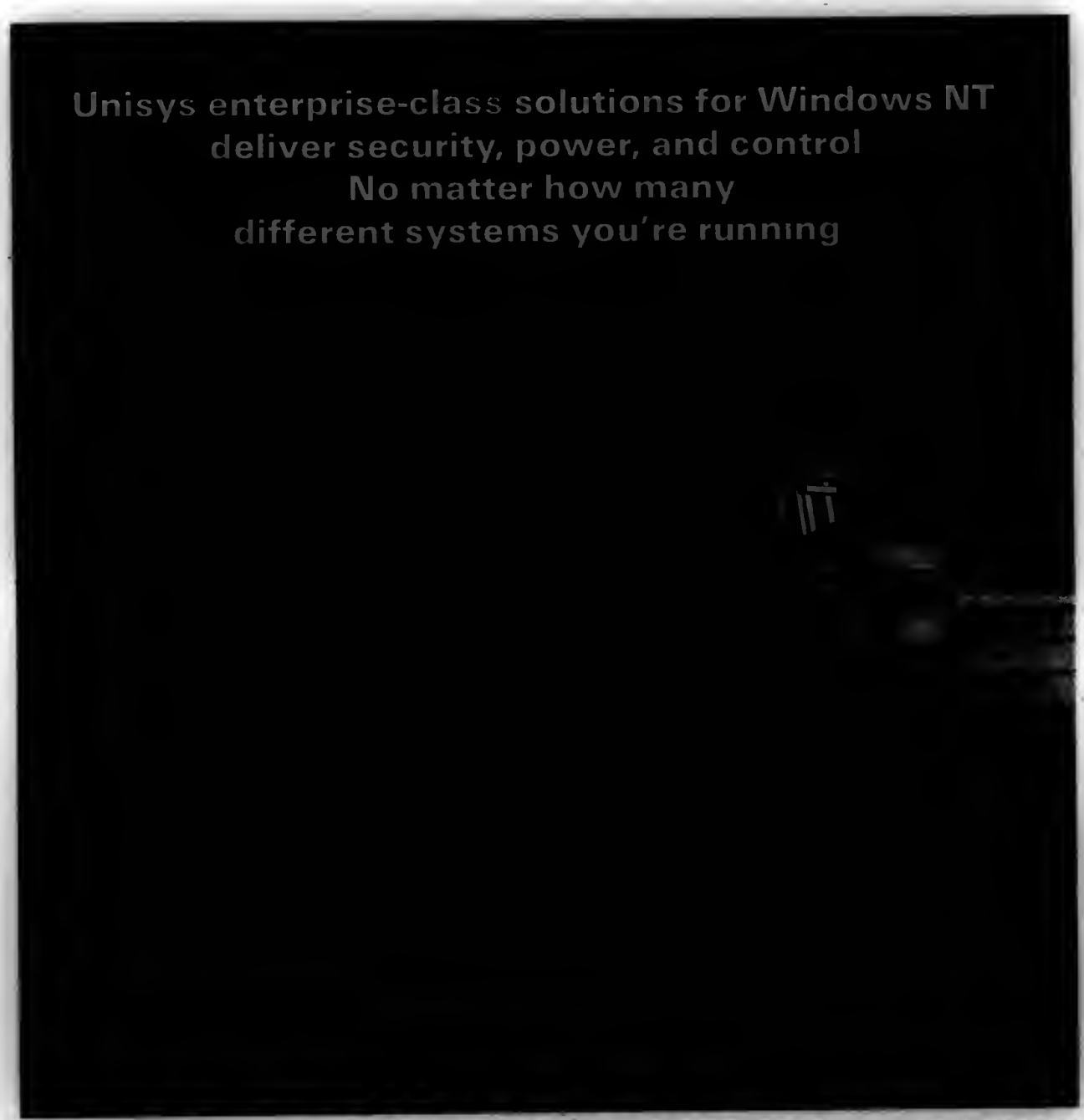

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EXTRANET A private, TCP/IP-based network that gives users from the outside access to your internal network.

HACKER An unauthorized person who breaks into a computer system to steal or corrupt data.

INTRANET An internal TCP/IP-based network behind a firewall that allows only users within the organization to access it.

IP ADDRESS A unique identification for a computer or network device on a TCP/IP network.

PACKET A piece of data that contains information along with the address of where the data is going on the network.

PROXY SERVER A server that resides between the client and the server. It monitors and filters all traffic traveling between them. It also boosts Web browser response time by locally storing copies of frequently accessed Web pages.

ROUTER A device that connects two or more LANs and forwards packets between them.

TCP/IP Transmission Control Protocol/Internet Protocol. A standard method for delivering data across a network and the standard used by the Internet.

VIRTUAL PRIVATE NETWORK (VPN) A secure and encrypted connection between two points across the Internet. It acts as an intranet or extranet, except it uses the public Internet as the networking connection rather than your own wiring. Most VPNs are built and run by Internet service providers.

● Are there technologies or issues you would like to learn about in QuickStudy? Send your ideas to QuickStudy editor Stefanie McCann at stefanie_mccann@cw.com

Firewalls

DEFINITION: A firewall consists of hardware and/or software that lies between two networks, such as an internal network and an Internet service provider. The firewall protects your network by blocking unwanted users from gaining access and by disallowing messages to specific recipients outside the network, such as competitors.

An effective barrier to intruders, but you'll be burned without upkeep

By Stefanie McCann

WHEN HOSTING A PRIVATE PARTY, you might place someone at the door to check names against the invitation list. Any person not on the list is denied access. That's essentially how a firewall works on a network.

Firewalls come in many forms: They can be software in a router or residing on a server. Their job is to prevent unwanted users from accessing the network while allowing approved users to gain access.

A firewall can also prevent an insider from communicating with the "wrong" people from the outside. For example, some companies put up firewalls to prevent employees from exchanging E-mail with competitors.

AT ISSUE
Popular security option isn't a cure-all

BIG ONES, LITTLE ONES

Firewalls provide a wide range of protection at a variety of prices. A $30 device can protect an individual PC or workstation, whereas a $100,000 system, consisting of routers and proxy servers (see glossary), can protect more than 1,000 internal users and more than 1,000 external users, according to Chris Christiansen, an analyst at Framingham, Mass.-based International Data Corp. (IDC), a sister company to *Computerworld*.

But analysts warn that just because users have a firewall, it doesn't mean they can stop worrying. "[Firewalls] are not install-and-forget devices," Christiansen says. "A poorly maintained firewall is a hacker's best friend."

The firewall market grew 143% between 1996 and 1997, according to IDC, mostly because businesses were upgrading their security devices to deal with a maturing Internet.

Other factors contributing to that growth included the increase of intranets and the growth of extranets and virtual private networks.

Although the market is growing, there are some drawbacks to this technology.

"While it creates a barrier to keep the bad guys out, it can make it harder for the good guys to do what they need to do," says Ted Julian, an analyst at Forrester Research Inc. in Cambridge, Mass.

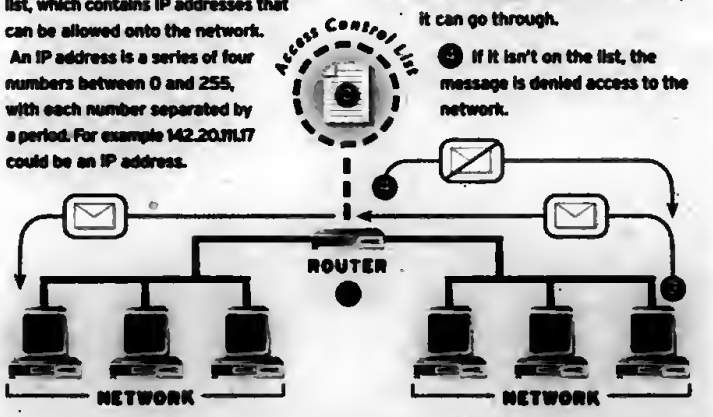
To allow the proper access, one expert suggests that the person installing the firewall should have a knowledge of security.

"You have to have a dedicated employee whose job is data security," says Marcus Ranum, CEO of Network Flight Recorder Inc., a company that tries to determine the cause of network break-ins after the fact.

A former network security consultant, Ranum has been credited with creating the first commercial firewall. □

HOW A BASIC FIREWALL WORKS

1. A router sits between two networks.
2. A programmer writes an access control list, which contains IP addresses that can be allowed onto the network. An IP address is a series of four numbers between 0 and 255, with each number separated by a period. For example 142.20.111.17 could be an IP address.
3. A message gets sent to the router. It checks the address against the access control list. If the address is on the list, it can go through.
4. If it isn't on the list, the message is denied access to the network.



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OPINION

Private thoughts

Internet companies last week took a stab at self-regulation in the touchy area of online privacy. But their cure may only hasten the onset of dreaded government regulation.

Eight of the leading online companies — including Microsoft, Netscape and most of the major search engine companies — formed the Privacy Partnership, responding to mounting pressure to prevent abuse of personal data collected on the Net. Their weapon: Give away banner advertising on their own Web sites.

That response falls far short of the broad education campaign that's really needed, so far short that government regulation advocates could conclude that those companies aren't really serious about the issue.

But they should be. Privacy is a potentially explosive concern. Through a combination of consumer tolerance and luck, the industry so far has avoided

the kind of privacy Chernobyl that could occur if, say, 100,000 Amazon.com credit-card numbers were posted on Usenet.

Such a scenario isn't unrealistic. And if it happens, the Internet community will feel the clammy hand of government regulation on its neck. Remember that the computer industry is vulnerable to small events — such as Pentium bugs or the Michelangelo virus — becoming much bigger symbolic issues than they really are.

Do we want privacy laws such as those in France, which require a business to get permission from each individual on a mailing list before using that list for another purpose?

The banner ad giveaway is a start, but the Privacy Partnership members could do better. They could start by posting their own privacy policies on their home pages in larger-than-microscopic type. They could require advertisers and business partners to post privacy statements online or join an advocacy organization such as Truste. And members each as Microsoft and America Online could use their ample print-advertising and direct-mail resources to raise awareness.

If vendors brought a fraction of the resources to ensuring online privacy that they did to battling software piracy, they could deflect the regulators and give consumers the assurance they need.

Paul Gillin, *editor in chief*
Internet: *paul_gillin@cw.com*

LETTERS

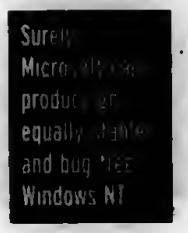
Linux: Setting a good example for you know who

I ENJOYED READING the article about Linus Torvalds ["Creator is sanguine about Linux future," CW, Aug. 17].

It's about time the accomplishments of this unassuming man were spotlighted in a publication of *Computerworld*'s caliber.

I am also pleased that positive coverage was extended to Linux, unlike the mostly dismissive treatments it receives in other publications I've read. The rapid proliferation of Linux systems worldwide is indicative of a much larger force at work. People everywhere are getting fed up with a crash-prone, resource-gobbling operating system.

The fact that so many Web servers run on Linux speaks volumes about the operating system's capabilities and thus brings up an unavoidable question: Why can't Microsoft accomplish what the Linux development team has accomplished?



Surely with its legions of well-paid professional programmers, Microsoft can produce an equally stable and bug-free Windows NT.

Of course, if the company were to do that, it wouldn't be able to profit from the sale of endless "service packs" and "upgrades" to a captive audience.

Bill Brier
Sponge-Cushion Inc.
Morris, Ill.
steggy@ameritech.net

Plugging the Java plug-in

I FOUND YOUR front-page article on Java to be incomplete ["Java use limited in critical apps," CW, Aug. 24]. Although it pointed out that relying on a browser for client-side Java can cause implementation headaches, it made no mention of the existing solution to that problem: the Java plug-in.

That solves this problem for browsers as old as Netscape Navigator Version 3. For one of our applications, we have users running client-side Java via Appletviewer, but we are in the process of testing our next release using the Java plug-in.

It gives us the freedom to run Java in the browser on a single Java virtual machine across different versions of both Netscape's and Microsoft's browsers.

Vik P. Solem
Cambridge, Mass.
vsolem@bbn.com

To the true believers

I HAD TO LAUGH and shake my head as I read "Microsoft backpedals on NT 5.0" [CW, Aug. 24]. I envisioned thousands of myopic zombies serving as CIOs and IT managers, still believing the vapor emitted from Redmond.

They adopted a substandard product largely on the promise that the next version would fix everything.

Of course, they follow the lead of the media, who run the fairy tales that Microsoft issues as fact. Remember the year of hype surrounding Windows 95? There are several stable, robust and proven products that do now what Windows NT (fill in the version) promises for the future.

Why wait for what may never actually arrive?

Chris Owen
Atlanta
warpwiz@usa.net

A moment of clarity for one *Computerworld* reader

AS I WAS enjoying a late lunch in the park one afternoon, I began reading the article, "Banks gird for run on ATMs New Year's Eve '99" [CW, Aug. 24]. Since I rely heavily on ATM machines, I was very interested. When I got to the paragraph about "... some smaller banks with manual ATM operations ...," I knew I needed some think time.

Hmmmm. Manual ATM operations? You mean a person behind the ATM, manually doling out the cash for each customer? Or could this be the new tech way of saying "teller?" Then I read more closely and understood the meaning of "manual ATM."

It was a fulfilling moment.

Judy Lochrie
Seattle
jlochrie@seatimes.com

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

An open letter to the CEO

Robert L. Glass

Chief: This is a note from the folks in IT. There's a problem we need to talk to you about. It's about those airline magazines you've been reading. You know the stories. They promise that some new technology — computer-aided software engineering (CASE) tools, or client/server or object orientation — is the answer to our prayers.

That here, finally, is the way to bring all our projects in on schedule, under budget, with superlative quality.

You come home full of enthusiasm for the latest miracle and ask us to start using it. That's why "Airline Magazine Syndrome" has become a standard joke in the IT field.

You should know that 'Airline Magazine Syndrome' is a standard IT joke.

The trouble is, hype plagues software. There are two important IT phenomena right now. The first is the rate of change in computer hardware. Truly, new products that are faster/better/cheaper come along at a blinding pace.

The second phenomenon is the problem: the rate of hype in computer software. Each new idea is touted as the breakthrough we've always wanted. It's as if we software folks, jealous of the hardware side, insist on pretending our progress is as rapid as theirs. That's the hype you've been reading in those airline magazines.

We've attached actual research on some of the overhyped software technologies of recent times — structured programming, fourth-generation languages, CASE, object-oriented programming. We know you're busy, so here's an executive summary: Each of these allegedly groundbreaking technologies was . . . just OK. Each had strengths and weaknesses. Each improved productivity in some cases but not in others.

Letdown, eh?

The point is, the field of software is riddled with hype and light on research. Studies that do exist provide little support for all those productivity-increase claims. What does the research say? There are two things worth sharing:

Timing: For any new technology, there is, of course, a learning curve. When people start using a new approach, productivity and quality drop (no matter that advocates claim instant benefits). It takes weeks or months or years, depending on the complexity of the technology, for the payoff to come.

And about that payoff: Once the learning curve is overcome, most "miracle" approaches do indeed provide benefits. But research, as well as the beliefs of knowledgeable software practitioners, suggests that those benefits usually fall in the 5% to 35% range. Nowhere near the breakthroughs the hypesters claim — but the gains are real, if relatively small.

Thanks for reading this. Next time you read about a software breakthrough in an airline magazine, please take it with a grain of salt. Come back to the plant and tell us about it — but realize that the article undoubtedly hypes the benefits.

We'd like to close with a quote. Ed Yourdon, perhaps the best-known popular guru in the systems and software field and a columnist at *Computerworld*, once said, "I wish I could still believe that structured analysis — or, for that matter, information engineering, object-oriented techniques or any methodology — had the power to change our world. But one of the sad, sobering consequences of reaching middle age is the discovery that by and large, it's all BS."

That's the message we want to share with you, chief.

Respectfully yours, IT.□

Glass is president of Computing Trends in Bloomington, Ind. He has published more than 20 books and 60 papers, edits Elsevier's Journal of Systems and Software *and is a columnist for several computing journals.*

Maintenance costs imperil some IT projects

Michael Schrage

While chatting with a Wall Street Master of the Universe (that's MOTU to you) who was drowning his sorrows at a reception, I innocently asked what his firm's biggest IT issue is right now. Year 2000? The euro? Web/legacy integration? The help?

The answer came instantly: "What we're going to *stop* investing in."

I didn't understand. He explained: The bank was finding that in a growing number of products, the ongoing costs of upgrading the IT infrastructure to keep up with market complexity had diminishing returns. In those product segments, IT costs were dramatically skewing the risk/reward ratios for remaining on the cutting edge. So his management committee was debating which lines should be abandoned. The game was no longer worth the candle.

Incredulous, I asked the MOTU if IT was truly the make-or-break factor for the abandon/embrace decision. Yes, he said. "If you really want to make the kind of money we want to make, you can't afford to lag behind the Goldmans and the Merrills in the infostructure. We compete to win." The firm would like to free up a lot of money to better focus on its most profitable products.

He then turned to kibitz with his fellow MOTUs about the bailout of Long-Term Capital Management.

There are few industries more computationally intensive than financial services. But you have to wonder if financial services will become a bellwether for strategic *dis*investments in IT, where it was once the leader in IT investment. I'm not talking about outsourcing; I'm talking about bailing out.

For all the talk about the multifaceted wonderfulness of IT, the rise of Web commerce and how goshdarned nifty ERPware can be, top management remains irked by IT. A decade ago, business managers whined about application backlogs. Today, they whine about the cost of maintaining IT portfolios. Standardizing around the Web or ERP clearly reflects the desire to consolidate that portfolio. The expectation cultivated by a generation of digital innovation is that IT will continuously offer more business bang for fewer bucks.

That may be unfair, but it's not unrealistic. What *is* unrealistic is the expectation that the economics of all of a company's product and service offerings fall under the IT cost/learning curve. What organizations say no to is every bit as important as the yeses. Project priorities based on politica more than value, for example, invariably create more grief than money. But by clever accounting and cost allocation, fundamentally unjustifiable IT investments can be used to help a company stay in a market niche where both margin growth and market share are trending down. Numbers don't lie, right?

We can no longer promise continuously bigger bang for fewer bucks.

Strategic IT has got to become as sensitive to the principle of diminishing returns as to the prospects of growing opportunity — all the while making sure that systems never go down and do what everyone wants within acceptable response times. That's a harsh sensibility for a business culture used to getting more for less. But it's time.

By the way, I made follow-up calls to MOTU National Bank. I got the feeling that disinvesting in those product lines may be more a function of an increasingly volatile market than of an increasingly expensive IT infrastructure. Is IT a reason or an excuse? That's a growing top-management struggle.□

Schrage is a research associate at the MIT Media Lab and author of No More Teams! *His Internet address is schrage@media.mit.edu.*

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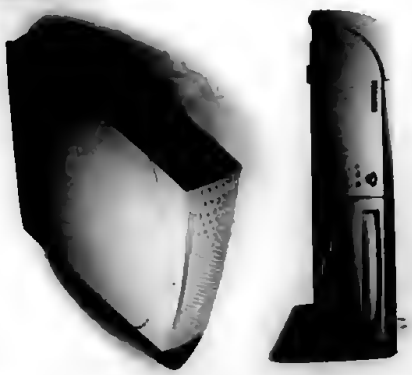
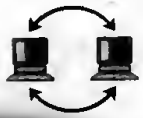


back to work. This modular design is just one more example of how Toshiba is taking the desktop seriously. Other examples? Flexibility in any working environment—your Equium can operate as a traditional desktop, a vertical tower, or as a wall-mounted unit for any wall or cubicle. Consistency of components means these systems share parts, so you can cut qualification times. They even feature a self-fixing Expert Intelligent Help System to reduce calls to your help desk. The most flexible, cost-efficient corporate PCs on the market. They're not miracles. They're Toshibas. For more details, give us a click at www.toshiba.com, or call us toll-free today at 1-800-TOSHIBA.



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Horror stories that weren't

Bill Laberis

These are scary times we live in. Major world economies sputter and teeter, and our own stock market is sick. The symbol of world leadership — the president of the United States — may get fired. The dawn of the year 2000 is mere months away, and we all might sleep through it if embedded chips in our clock radios aren't compliant.

In times like these, remember all the big IT scares that never panned out.

In times like these, our frail human nature tends to give far greater credence to various doomsday scenarios than it might in calmer times. In fact, over the years, the IT world has been a very fertile seedbed for the planting of all kinds of fear, uncertainty and doubt. The harvest, on the other hand, has been altogether different.

I've searched the memory banks and files for some of the big scares that never panned out. Mulling these might help you weather the many fright storms that are sure to gather in the months ahead.

Whither the radiation scare? It seems like only yesterday (in fact, it was the early 1990s) that trade publications were stuffed with "potential time bomb" stories about the perils of radiation emanating from computer monitors. The National Organization for Women (NOW), not letting facts get in the way of a good story, pumped the perils, as did various labor unions, so-called consumer advocacy groups and a Swedish institute of great thought. Women, particularly those of childbearing age, were in significant peril and needed to be protected, bleated the groups.

Only now we know NOW and company as a bunch of alarmists on an issue that never was. Turns out you and yours-to-be get a hell of a lot more radiation from the TV set than from a display tube — and neither one radiates in anything approaching a harmful manner.

Consult insult. The hand-wringing. The tears. The emotions. All the angst brought about by Section 1706 of the Tax Reform Act, that nefarious bit of accounting procedure that was widely speculated to spell death for independent computer consultants. They'd all end up working for big, slimy, cheap job shops.

Actually, consultants kept on working for themselves, and there are far more of them today than when 1706 was promulgated in 1986. And today, they make far more money.

While we slept. Michelangelo. Jerusalem. Stoned. Friar Tuck and Robin Hood. Just a few of "major computer viruses" programmed to explode at specific times (such as Halloween), wreaking havoc that would make the fox known as the year 2000 look like a milk-fed puppy. Editors such as me at publications such as this one assigned writers full time to cover the enterprise virus threat.

Do you know of any companies brought to their knees, or even greatly inconvenienced, by outbreaks of the above-named agents? Me neither.

Hardee-har-har wars. It was billed as the greatest corporate battle ever, a campaign of gargantuan proportions. It would be more than just two giants battling. It would be the manifold expression of the confluence of computing and communications.

It was the battle for IT industry supremacy between AT&T and IBM.

I kid you not. The only thing they ended up fighting over was cabs, as each company bailed its corporate offices out of New York.

Rest easy. Don't worry, be happy. □

Editor in chief at Computerworld *from 1986 to 1996, Laberis is now president of Bill Laberis Associates, a consulting and publishing company in Holliston, Mass. His Internet address is bill@laberis.com.*

Looking for the Great Microsoft Alternative

David Moschella

Just as boxing promoters are always said to be on the lookout for the Great White Hope, so it seems that the IT industry is always in search of the Great Microsoft Alternative.

With a recent bubble of enthusiasm, Linux now is being sucked into this disturbing pattern of wishful thinking. Unfortunately, the embrace of Linux is just the latest evidence that the search is becoming increasingly desperate, with each new contender weaker than the last.

In the early 1990s, Unix was a legitimate Microsoft rival that could easily have kept Microsoft pinned in its desktop markets. If vendors had agreed on a real Unix standard, it is doubtful how much we would care about Windows NT today. However, hardware vendor egotism, greed, shortsightedness and just plain stupidity largely strangled the business, with only Sun remaining completely committed.

The next big thing was Netscape, whose browser could have served as a firewall against further Microsoft incursions into Internet software. However, Microsoft quickly responded and targeted its vast firepower on Netscape. Meanwhile, partly through its own arrogance and partly through the petty calculations of its potential partners, Netscape wound up taking on Microsoft all by itself, with predictable results.

Since then, the half-lives have been shortening. First, we had to endure the huge barrage of hype over network computers (boxing fans will remember Gerry Cooney). Given existing levels of bandwidth, there was simply no way customers would abandon the advantages of local processing and disk drives, and network computers never really showed up for the fight.

Similarly, Java, although much more real than network computers, still isn't a serious threat. In today's network environment, no programming language can render Microsoft's operating systems and applications irrelevant. Nor will any language make four decades of incompatible software interoperable. As with network computers, there's a chasm between Java's hype and its reality.

Now we come to Linux, a regular Randall "Tex" Cobb of a fighter, where our hopes are grounded in sentimentality. It would be nice to believe that where shortsighted vendors have failed, individuals and the spirit of the community will triumph. It would be a bit like a scene from *It's A Wonderful Life*. But, although Linux and Apache Software are intriguing, the reality is that the tide is slowly going out on shareware, just as it is for the Internet standards bodies. The vendors are steadily taking charge.

The embrace of Linux proves the search is growing desperate.

What mighty new challengers will we conjure up next? Would Microsoft's application monopoly be toppled if PC vendors bundled free Internet-savvy word processors, spreadsheets and graphics programs with every machine? Or will 3-D interfaces somehow revolutionize everything?

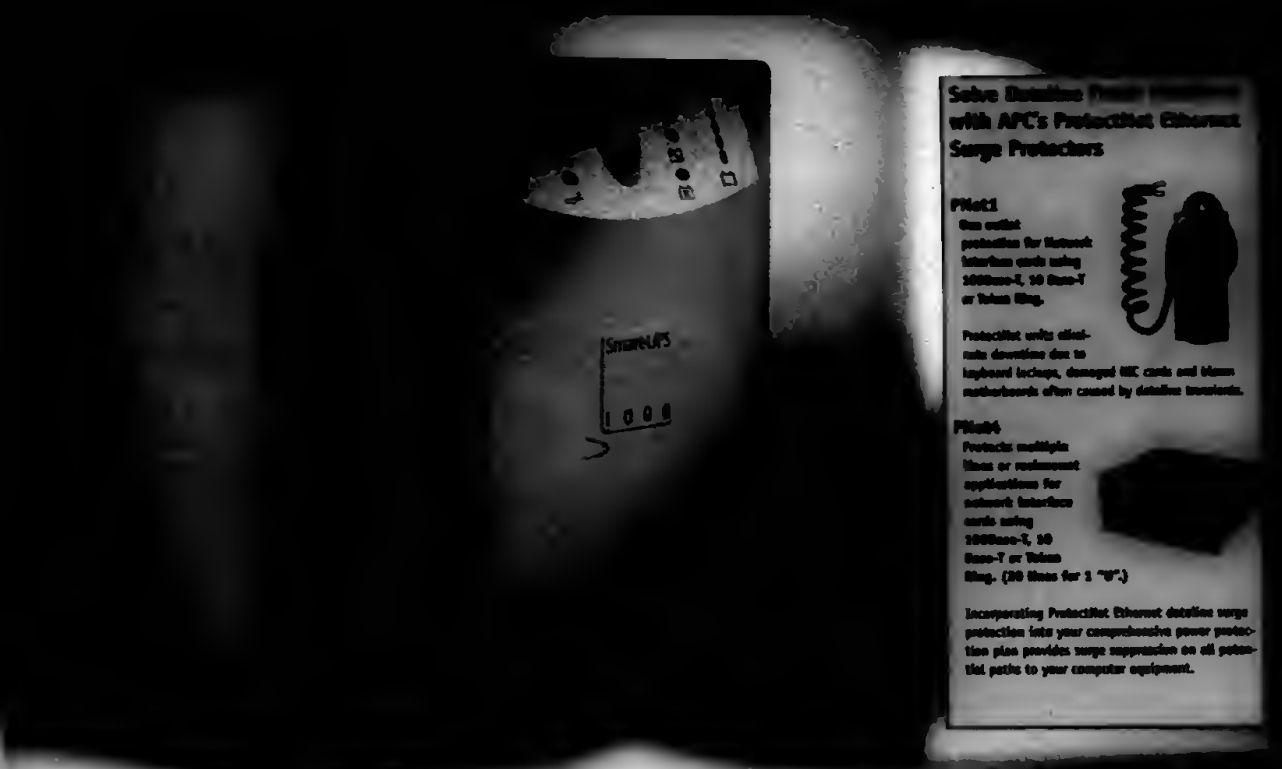
This shift from real possibilities to a series of pipe dreams would be harmless enough if it didn't take our minds off Microsoft's growing power, while allowing the folks in Redmond to point to the "fierce" competition they allegedly face.

Fantasies aside, no Microsoft alternative will get any serious traction until three things happen:

- Competitors shore up the critical battlefronts of databases, E-mail, streaming media and application development.
- Massive bandwidth gives network computers, WebTV and Java-based devices more appeal than PCs.
- The U.S. Department of Justice puts enough of a leash on Microsoft that the company holds back the next time its instinct tells it to price a rival out of business.

In the meantime, let's all stop looking for the Great White Hope. □

Moschella is an author, independent consultant and weekly columnist for Computerworld. *His Internet address is dmoschella@earthlink.net.*



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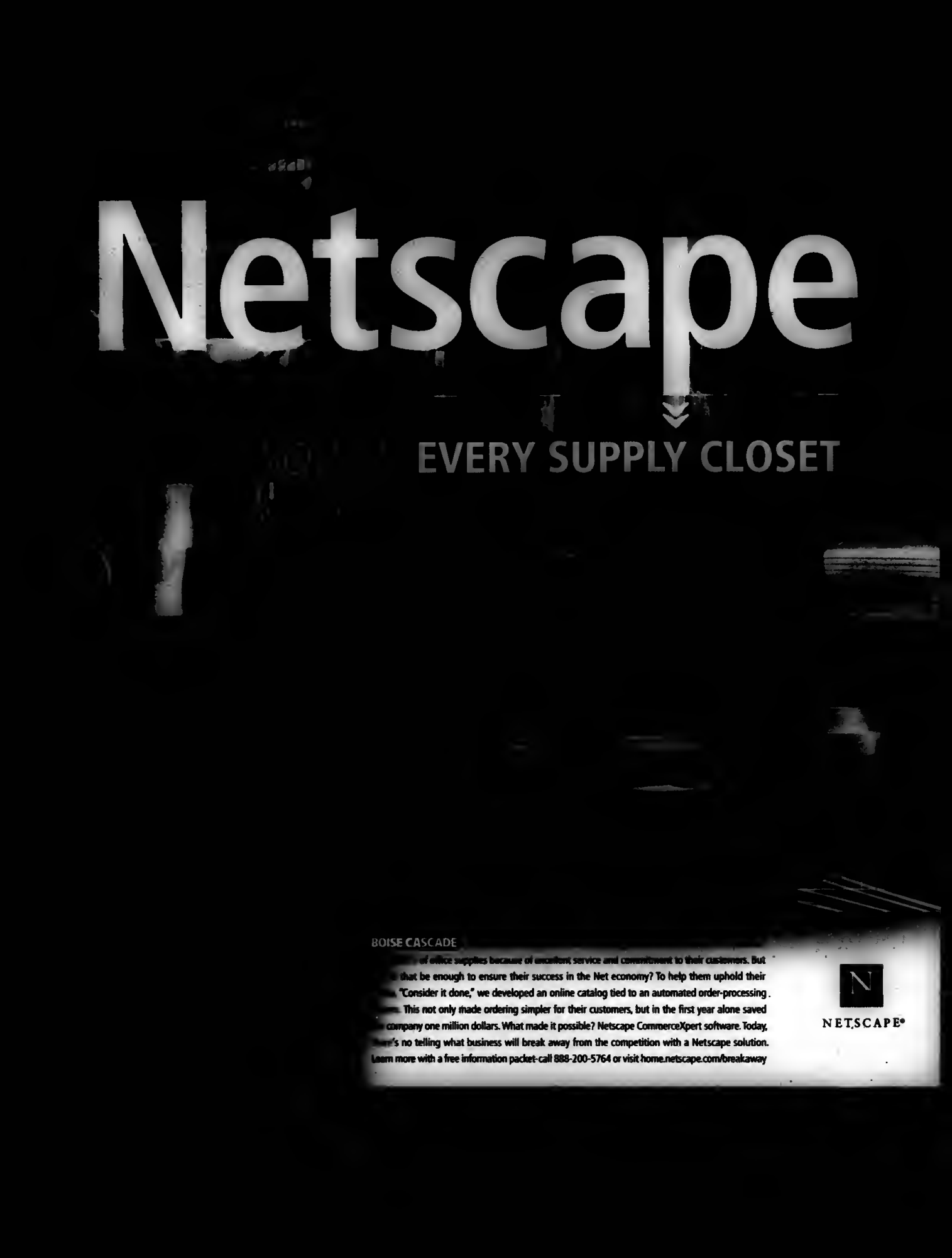
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Top 10 Web job boards

1. **Computer Jobs Store** (www.computerjobs.com)
2. **Headhunter.net** (www.headhunter.net)
3. **Online Career Center** (www.occ.com)
4. **Net Temps** (www.net-temps.com)
5. **DICE** (www.dice.com)
6. **Career Mosaic** (www.careermosaic.com)
7. **Junglee** (www.junglee.com)
8. **Recruiter's Online Network** (www.recruitersonline.com)
9. **MedSearch** (www.medsearch.com)
10. **Monster Board** (www.monster.com)

Base: Survey of 2,620 paying customers of job sites

Source: Interbiznet.com, Mill Valley, Calif.

[redacted]

PHYSICIANS AND IT

What motivates your investment in information technology?

Improved business performance	88%
Managed practice growth	54.8%
Payer demands	48.3%
Need to manage risk	42.9%
Regulations	30.3%
Required by business partners	8.8%

Base: More than 8,000 physicians and administrative leaders at group practices; multiple responses allowed

Source: The 1998 Modern Physician/PricewaterhouseCoopers Technology Survey

• Nabisco/grocer pilot shows store-level planning a distant goal

Retailers face team-planning hurdles

By Craig Stedman

RETAILERS AND their suppliers are starting to look beyond sharing store inventory data toward a potentially more rewarding world of technology-driven joint business planning.

But the vision is still a long-distance one for both technical and business reasons, according to several users interested in the idea of using software to collaborate on demand forecasts and production plans.

For example, demand-planning software that can be used to predict shipments isn't ready to handle the strain of forecasting sales of individual products at different retail stores, the users said. And companies trying to work collaboratively first have to synchronize their business processes and convince one another that sensitive business data will be safe in someone else's hands.

Collaborative planning holds the promise of several big benefits: lower inventory costs for both retailers and suppliers, fewer empty store shelves caused by out-of-stock items and the ability to react quickly to demand swings or last-minute promotions.

All were in evidence during a 13-week test that Wegmans Food Markets Inc. and Nabisco Inc. finished last month.

The Nabisco/Wegmans team is one of a handful of groups doing pilot projects as part of the Collaborative Planning,

Retailers' hurdles, page 47

WHAT'S IT ALL ABOUT

The Collaborative, Planning, Forecasting and Replenishment initiative:

Goal: To develop business processes for collaboration among retailers and manufacturers

Affiliation: Part of the Voluntary Interindustry Commerce Standards Association

Number of participating companies: 26

Status: Set of guidelines for collaboration approved in June; five pilot programs in progress

Health industry warehouses data to cure disease, costs

By Barb Cole-Gomolski

FOR YEARS, companies have used data warehouses to market retail merchandise, sell more loans and identify the best customers. Now, health care companies have caught the bug and are using the technology to drive business decisions and control costs.

Health plans, which have traditionally focused on claims processing, now are developing disease-management systems. At the same time, physician associations have begun to look at cost management.

Last month, Oakland, Calif.-based Kaiser Permanente announced plans to build a national prescription data warehouse that will hold data from 13 regional pharmacy systems, as well as three claims processors. The goal is to improve the quality while reducing the costs of patient care by tracking and managing the use of pharmaceuticals and by developing prescribing guidelines.

Also last month, New York Care Plus Insurance Co. said it would build a data warehouse that combines financial and administrative data to develop and price new health plan products at two of its subsidiaries, in Buffalo, N.Y., and Albany, N.Y.

A successful health care data warehouse can have a return on investment of 400%, said Tim DePreist, senior manager at Deloitte & Touche Consulting Group in San Francisco. But before they reap the benefits, health care companies have to

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Which of the following business challenges are driving the increased reliance on IT in your organization?

Base: Survey of 1,380 senior operations, financial, IT and clinical managers at health care organizations

Source: Healthcare Information and Management Systems Society, Chicago

Efficient IT helps debt agency collect

By April Jacobs

WITH GROWTH spawning 100 new end users per week and a $25 million application project in the works, Commercial Financial Services Inc. (CFS) should be up to its proverbial neck in information technology confusion.

It isn't.

CIO Chris Horrocks credits an almost "military" precision in managing the company's technology resources with keeping order. Less visible to end users, but still important, he said, is providing a stimulating work environment that keeps IT staffers interested and engaged in their work.

It doesn't hurt that the underlying philosophy of Tulsa, Okla.-

Debt collection, page 47

Utility's warehouse to sharpen marketing

By Stewart Deck

ALABAMA GAS CO. has three years of historical data about its 410,000 customers, at least three operating system environments and lots of gas to sell.

So company officials have undertaken a data warehousing project that will link all of its systems — from new customer ordering to payroll applications — so Alabama Gas can sharpen its marketing focus and have a clearer picture of its own internal systems.

Alabama Gas, a division of Energen Corp. in Birmingham, Ala., now has all of its customer information in a mainframe-based IBM DB2 database. Every time a gas customer deals with the company by paying a bill or

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Corporate Strategies

Case Studies • Trends • Outsourcing

Briefs

Top 10 Web job boards

1. **Computer Jobs Store** *(www.computerjobs.com)*
2. **Headhunter.net** *(www.headhunter.net)*
3. **Online Career Center** *(www.occ.com)*
4. **Net Temps** *(www.net-temps.com)*
5. **DICE** *(www.dice.com)*
6. **Career Mosaic** *(www.careermosaic.com)*
7. **Junglee** *(www.junglee.com)*
8. **Recruiter's Online Network** *(www.recruitersonline.com)*
9. **MedSearch** *(www.medsearch.com)*
10. **Monster Board** *(www.monster.com)*

Base: Survey of 2,620 paying customers of job sites

Source: Interbiznet.com, Mill Valley, Calif.

Dow misses Citigroup

The merger between The Travelers Group and Citicorp threw off the Dow Jones Industrial Average for about 10 minutes Thursday, Oct. 8. Dow Jones & Co. computers should have calculated the morning Industrial average using the new Citigroup Inc. listing, but used Wednesday night's Citicorp closing price — a problem Dow Jones quickly corrected.

PHYSICIANS AND IT

What motivates your investment in information technology?

Improved business performance	88%
Managed practice growth	54.8%
Payer demands	48.3%
Need to manage risk	42.9%
Regulations	30.3%
Required by business partners	6.8%

Base: More than 8,000 physicians and administrative leaders at group practices; multiple responses allowed

Source: The 1998 Modern Physician/PricewaterhouseCoopers Technology Survey

• Nabisco/grocer pilot shows store-level planning a distant goal

Retailers face team-planning hurdles

By Craig Stedman

RETAILERS AND their suppliers are starting to look beyond sharing store inventory data toward a potentially more rewarding world of technology-driven joint business planning.

But the vision is still a long-distance one for both technical and business reasons, according to several users interested in the idea of using software to collaborate on demand forecasts and production plans.

For example, demand-planning software that can be used to predict shipments isn't ready to handle the strain of forecasting sales of individual products at different retail stores, the users said. And companies trying to work collaboratively first have to synchronize their business processes and convince one another that sensitive business data will be safe in someone else's hands.

Collaborative planning holds the promise of several big benefits: lower inventory costs for both retailers and suppliers, fewer empty store shelves caused by out-of-stock items and the ability to react quickly to demand swings or last-minute promotions.

All were in evidence during a 13-week test that Wegmans Food Markets Inc. and Nabisco Inc. finished last month.

The Nabisco/Wegmans team is one of a handful of groups doing pilot projects as part of the Collaborative Planning,

Retailers' hurdles, page 47

WHAT'S IT ALL ABOUT?

The Collaborative, Planning, Forecasting and Replenishment initiative:

Goal: To develop business processes for collaboration among retailers and manufacturers

Affiliation: Part of the Voluntary Interindustry Commerce Standards Association

Number of participating companies: 26

Status: Set of guidelines for collaboration approved in June; five pilot programs in progress

Health industry warehouses data to cure disease, costs

By Barb Cole-Gomolski

FOR YEARS, companies have used data warehouses to market retail merchandise, sell more loans and identify the best customers. Now, health care companies have caught the bug and are using the technology to drive business decisions and control costs.

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Health care, page 47

Which of the following business challenges are driving the increased reliance on IT in your organization?

- Deriving more value from data
- A recent merger or partnership
- Achieving a competitive advantage
- Regulatory requirements
- Other

Base: Survey of 1,380 senior operations, financial, IT and clinical managers at health care organizations

Source: Healthcare Information and Management Systems Society, Chicago

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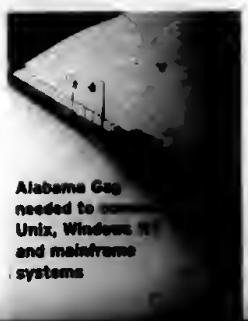
Debt collection, page 47

Utility's warehouse to sharpen marketing



Alabama Gas needed to [illegible] Unix, Windows NT and mainframe systems

By Stewart Deck

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Retailers' hurdles

CONTINUED FROM PAGE 43

Forecasting and Replenishment (CPFR) initiative, which is run by an ad hoc committee of 26 companies (see chart, page 43).

The test involved Planters nuts, which had year-to-year unit sales growth of 36% in the third quarter at Wegmans, said Mike DeCory, CPFR project manager at the 57-store chain in Rochester, N.Y. Despite the higher volume, he said, Wegmans was able to chop the average Planters inventory it warehoused from 14.1 days of sales to 11.6 and still do a better job of filling orders from the stores.

But it took five months of upfront work for the two companies to set up the business processes needed to share forecast, sales and product promotion data.

DeCory said Wegmans is still mostly building sales forecasts manually, although collaborative planning software from Manugistics Group Inc. is being used as part of a second pilot phase that Wegmans and Nabisco just started.

The manual forecasting worked during the test, which required only 22 weekly forecasts on individual Planters products. But doing store-level planning would increase that workload to about 1,250 forecasts each day just for Planters alone. "This is not going to be a routine part of our business any time soon," DeCory said.

Many food and consumer goods companies have taken over inventory tracking and replenishment for retailers, giving them a head start on working collaboratively compared with other manufacturers that are also looking at the concept (CW, Sept. 28).

But even in the retail business, most investments in joint forecasting and planning "are really only oriented around getting started" testing the ideas, said Bobby Cameron, an analyst at Forrester Research Inc. in Cambridge, Mass.

Gerber Products Co. manages inventories of its baby food for more than 40 grocery chains and is tracking the CPFR pilots (*www.cpfr.org*) with an eye toward expanding the inventory deals into collaborative planning.

"In some respects, we're still doing our sales forecasts in a vacuum," said Dennis Kline, an IT project manager at Gerber in Fremont, Mich. "But we haven't decided yet how we're going to attack [collaboration]." □

Health care

CONTINUED FROM PAGE 43

overcome an important hurdle: figuring out how to use the data warehouse without letting it override medical judgment.

Rising personnel and drug costs mean that health care providers must develop some kind of care guideline and measure themselves against it, said George Kendall, senior vice president and CIO at St. John's Medical Center, a 570-bed hospital in Tulsa, Okla.

St. John's soon will begin work on a clinical data warehouse. "It will point things out and make suggestions," Kendall said. For instance, it might indicate that the average stay for a particular procedure is three days, but that a medial record a doctor is working on shows the patient staying for five. "But we're not going to tell them how to practice medicine," Kendall said.

That's wise, DePreist said. "If this is done in a finger-pointing way, it usually creates animosity," he said. It's much better to approach this as a way to share information that will help health care providers be more successful, he said.

At St. John's, doctors also will get something in return for using the data warehouse. The hospital is building in features that will automatically detect drug interactions and notify doctors if a particular procedure isn't normally covered by an insurance company.

Many physicians are skeptical of data warehousing because they fear that cost-cutting will interfere with medicine, said Keith Fraidenburg, director of education and communications at the College of Healthcare Information Management Executives, an industry group in Ann Arbor, Mich.

"But I've also seen some highly successful data-warehousing applications," Fraidenburg said. For instance, some health plans offer provider profiles, which let doctors benchmark their utilization rates compared with other doctors in their area. "That's really valuable to them because in addition to being physicians, they are also running a business." □

Also see Data Warehousing, page 81

Utility

CONTINUED FROM PAGE 43

calling a service rep, information about that customer is logged in to the mainframe.

But the company's Transportation Services division's applications run on Windows NT, its oil exploration division runs on a mixture of Unix and Windows NT and its payroll systems are Unix-based. So Alabama Gas had to find a way for all of its applications — mainframe, Unix and Windows NT — to share data.

"We've needed a central place where we can get critical information for better decision-making," said Gary Warner, Alabama Gas' director of data services.

So Warner and his team are putting in a data warehouse built on Oracle Corp.'s Oracle8 database running on Hewlett-Packard Co.'s HP-UX version of Unix. To link the company's different systems they turned to Information Builders Inc.'s EDA product line. Equally important, Alabama Gas will be able to sharpen its marketing, spot usage trends and query the data more easily than it could before.

The company compiles data on new residential construction and will be able to use its warehouse to show which houses in a new development haven't signed on for the gas line running in front of their house. "We could then target these individuals and offer free gas hookups or a free hot water heater if they'll become a customer," Warner said. Sending such offers to homeowners who aren't close to a gas line would be wasted effort, he added.

Or, by comparing yearly temperature trends with individual gas consumption, the company could use its warehouse to discover which people have cut their gas bill by installing electric heat pumps. It would then send out letters offering them other gas services.

The kind of individual marketing attention that data warehouses provide is becoming a necessary tool for utilities, analysts said. "Utilities are starting to get to know their customers and differentiating themselves by providing focused customer service instead of just mass mailing," said Michael Hiem, an analyst at A. G. Edwards & Sons Inc. in St. Louis.

Consolidating customer information also lets companies run predictive models that can help their marketing departments, said Mitch Kramer, an analyst at Patricia Seybold Group in Boston. □

Also see Data Warehousing, page 81

Debt collection

CONTINUED FROM PAGE 43

based CFS is one that melds IT and business. That means the executive suite works with the IT department to develop marching orders with specific business goals in mind and accords its systems due respect.

"The company is the system, and the system is the company," Horrocks explained. Without the company's credit application and integrated autodialer system, business doesn't get done. Period.

The reason is simple. CFS buys bad credit-card debt from banks. Each day, its autodialing system tries to reach debtors by phone; when someone answers, a CFS representative comes on the line, and the debtor's account flashes onto the rep's screen, along with any special rules that apply to that state.

All that data resides on a very large SQL server database, Horrocks said.

For debtors who can't be reached via autodialer, the company uses a separate staff to track them down, using a database with billions of names, phone numbers and addresses.

BIG-TICKET ITEM

The price tag for such an IT infrastructure will be about $70 million this year, Horrocks said, with about $25 million put toward enhancing the company's credit application and moving it from NetWare to Windows NT. The application has been completely rewritten and should offer closer integration with the calling system so that CFS employees can work faster.

That's key because the time customer service reps spend waiting for the system to catch up is time they aren't collecting more debt.

Even more important, the new system promises improved uptime, from about 95% to 99.5%, Horrocks estimated — not a small amount when every hour of downtime costs about $650,000 in lost revenue opportunity. "When our systems go down, the company stops," Horrocks said.

Getting the new system up and running smoothly is being made easier by a simulation lab that tests how the application will perform when factors such as network bandwidth and additional users are taken into consideration, said Glenn Harris, director of research and development at CFS. For instance, the simulation lab helped the company identify a potential bottleneck and add more disk space before performance was affected, according to Harris.

AT A GLANCE

Company: Commercial Financial Services Inc.

Headquarters: Tulsa, Okla.

Number of employees: 4,500

Business focus: Credit-card debt collection

1997 revenue: $1B

IT projects in progress: $25M credit collection application

Core operating systems: Windows NT 4.0 and Windows 95 (moving off Novell)

Yet the systems themselves are only half the challenge in keeping the business humming; effective IT staff deployment figures prominently, too. Horrocks said the company manages to stay on top of installing numerous PCs frequently by having the process down to a science, with few steps and automated software deployment. It takes a team approach to new initiatives.

Such efficiencies helped CFS increase its profit margin from 39.3% in 1996 to more than 50% last year, for a total of $187 million. Not bad for a company that was founded in 1986 with $1 million. □

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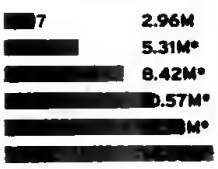

* Projected

Source: Forrester Research Inc., Cambridge, Mass.

It's a bona fide bank

The American Bankers Association in Washington has developed its own Web seal to assure consumers they have clicked on a real, certified bank's Web site. The move follows reports of sites that mimic the look and feel of banking sites but are actually Internet scams. The SiteCertain seal was developed by ABAecom, the association's new electronic-commerce subsidiary, in conjunction with Digital Signature Trust Co. (DST). DST is a subsidiary of Zions First National Bank in Salt Lake City and was approved by the U.S. Office of the Comptroller of the Currency to act as a certificate authority.

Online job fair

Applied Media Dynamics Inc. in Miami is hosting an online job fair for technical professionals on Oct. 25 at its Web site, www.techmixer.com. The fair will run until Nov. 8.

WEB USAGE INDEX

Average activity per Web user

Page views per week: 348

Time spent online per week: 5 hours, 37 minutes

Sessions per week: 9

Pages visited per surfing session: 39

Time spent during session: 37 minutes, 28 seconds

Duration of a page view: 58 seconds

Base: August measurement of about 2,000 Internet users accessing the Web from home

Source: NetRatings Inc., Milpitas, Calif.

More sites use E-mail for marketing

▸ *Done right, customers don't consider it spam*

By Roberta Fusaro

ONLINE COMMERCE

THEY KNOW they're walking a fine line between legitimate marketing and spam, but online retailers are increasingly using E-mail to build customer relationships.

Stamford, Conn.-based Meta Group Inc. predicts that in the next two years, E-mail list management will become more sophisticated and a core part of sales and marketing campaigns for companies that sell over the Internet. That's because direct E-mail based on Hypertext Markup Language (HTML), the Web programming language, provides a more dynamic way to present marketing information, is infinitely cheaper than printing and delivering marketing materials and is easier to mine for customer data and response rates, according to the research firm.

Rolling Stone Network, the popular music magazine's Web site, sends a twice-weekly newsletter to visitors of the site

That's proved true for JamTV Inc., the New York-based company that operates the Rolling Stone Network, a Web site for the venerable music magazine. In early August, it established a twice-weekly E-mail newsletter that's shipped to more than 110,000 visitors to its Web site and others who sign up for the mailing.

The company added HTML capabilities to the newsletter in the past few weeks and offers links to on-demand videos and information about the latest CD releases on the main *Rolling Stone* Web site, said Chris Phenner, business development manager at JamTV.

Rolling Stone/JamTV uses online publishing services from InfoBeat Inc. to transmit the newsletters, Phenner said.

And BMG Music Service, Macys.com and Omaha Steaks Inc. three weeks ago signed on with a direct-marketing E-mail

E-mail, page 54

Auto dealers find sales slow on Web

▸ *So they focus on marketing, service — but hit rates are tiny*

By Bob Wallace

MORE THAN HALF of the car and truck dealers in the U.S. now have their own Web sites, but most of them aren't selling many vehicles, according to a recent survey of 1,000 dealerships.

But that isn't necessarily unexpected or bad news, experts said. Instead, it's evidence of the role dealerships play in providing different — rather than competing — information and services from the giant auto manufacturers.

Sixty-one percent of franchised new car and truck dealers have Web pages, but the dealers claim they sell an aver-

Auto dealers, page 54

Acton Ford's David Abate

"The Web is another way to do business and communicate with customers, but it's not necessarily a vehicle sales tool"

GemStone server supports Enterprise JavaBeans

By Carol Sliwa

THE APPLICATION SERVER market is flooded, but GemStone Systems Inc. in Beaverton, Ore., offers a different twist: a built-in object database that's well-suited to the Java programming model.

Now that the GemStone J 2.0 application server — announced today — supports the Enterprise JavaBeans specification, developers won't have to write middleware code that starts and stops transactions, checks security, stores data in the database and manages the user session.

They just have to write Enterprise JavaBeans-compliant interfaces for applications designed to run in a distributed environment over the Internet or a private network.

For instance, the Federal Aviation Administration's telecommunications division is working on Java applications that will let employees order telephone services and track maintenance activities.

In building the Java application, the FAA had to write five layers of software, including a layer of objects that define the properties and business functions that need to take place. GemStone's Enterprise JavaBeans support will eliminate the need for the FAA to write that layer of code.

"That's about a third of the code we had to write," said Nick Xidis, a telecommunications manager at the FAA in Auburn, Wash. "I would guess that the value of that code is about $125,000. I can now redirect the money and those developers' time to writing code that improves my product — rather than writing this generic code that applies to . . . how to han-

GemStone, page 54

World Wide Wait

The average time, in seconds, to download a home page from one of 40 business-related Web sites during business hours for the week of Oct. 5, 1998:

Top 5 best-performing Web sites	
Netscape	2.91
Microsoft	3.69
Yahoo	3.81
Lotus	4.24
Hewlett-Packard	4.26

Best areas for Web surf	
Boston	4.56
Milwaukee	5.32
Pittsburgh	5.70
Worst areas for Web surf	
Columbus, Ohio	18.66
Phoenix	12.75
San Diego	10.32

Source: Keynote Systems Inc., San Mateo, Calif.

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Netscape offers new security tool

▸ *Allows services to be built in to applications*

By Carol Sliwa

NETSCAPE COMMUNICATIONS CORP. today announced a tool that will let developers build security services in to their applications.

Although the Netscape Security Services product is targeted at independent software vendors, it also can benefit corporate developers who need to add Secure Sockets Layer encryption, authentication or other public-key infrastructure security to their applications, said Phil Schacter, an analyst at The Burton Group, a consultancy based in Midvale, Utah.

"Big IT groups have been given the mandate to create custom application code to support new extranet applications," Schacter explained. "This [tool] provides them with some productivity benefit. They don't have to work at the protocol level."

A standard version of Netscape Security Services sells for $70,000. The Federal Information Processing Standard 140-1 government-certified version costs $150,000.

INTEGRATION PARTNERS

Netscape this week also announced that more than 20 security product vendors, including Check Point Software Technologies Ltd., are integrating the company's directory and/or certificate server into their firewall, smart card and other security-related products. □

E-mail marketing

CONTINUED FROM PAGE 51

service provider, San Mateo, Calif.-based Digital Impact and its Merchant Mail service. Those companies will add E-mail newsletters to the catalogs and other marketing materials they already send customers via regular U.S. mail.

The Sharper Image, an electronics retailer based in San Francisco, has been using the Merchant Mail service for the past three months to offer customers a sneak peek at merchandise and sales via a newsletter sent by E-mail.

E-mail marketing can draw repeat visitors to sites and educate customers about products, according to Cliff Allen at GuestTrack.

Davia Kimmey, a senior vice president at the company, said E-mail marketing materials "serve to remind those who like us that there is something new being offered" at the Web site. E-mail is a logical means of marketing, she said, as long as you don't intrude too much on a user's in-box.

That's true, said Cliff Allen, president of GuestTrack Inc., a Web personalization software company in Los Angeles and co-author of a user's guide for one-to-one marketing via E-mail. Spam is a major pitfall to E-mail marketing, he said, and to avoid being perceived as a spammer, businesses must provide only quality content that users have requested.

If done right, E-mailed marketing materials can draw repeat visitors to a site and educate customers about the value they can get from the products, Allen said.

The chance of selling more to those individuals increases, while the costs of marketing to them go down compared with conventional means, he added.

All three retailers said they feature opt-in boxes at their sites to thwart the perception of spam. "It's more costly to acquire [new customers] than it is to retain and build better relationships with [older customers]," Kimmey said. "So we are cautious about mailing our information only to people who have asked for it."

Elizabeth Rose, a vice president at New York-based BMG, said the record club already communicates with members through U.S. mail, sending out catalogs every three weeks.

But the Merchant Mail software will let BMG target certain members — jazz or hip-hop fans, for example — with specialized offers. "E-mail offers a wide range of personalized communications opportunities with customers," Rose said. In some cases, BMG is able to offer discounts on products because of the Internet, she said, "because of the cost-effectiveness of delivery." □

Auto dealers find sales slow on Web

CONTINUED FROM PAGE 51

age of only 5.3 vehicles per month over the Internet, according to the survey conducted by the National Automobile Dealers Association (NADA). That's up from five per month last year. Why the low sales numbers?

"The focus of dealers that have [Web] pages is to market their dealerships and get people to come in, not necessarily to complete a transaction [online]," said Tom Webb, chief economist at Washington-based NADA. Dealers are using the Net to build relationships with prospective customers and strengthen bonds with current customers, he added. "As a result, I wasn't surprised by the low sales figures."

Even beyond sales, most dealership Web sites aren't heavily used. Half of the respondents get one to 50 hits per month, according to the survey, while only 10% get more than 500 hits per month. And one to 50 hits per month is low, Webb said.

Experts said usage is light because consumers first go to the manufacturer's Web site, which often helps shoppers locate the dealer with the vehicle they seek. Others access popular independent sites such as Auto-by-Tel and Microsoft Corp.'s CarPoint.

But site visits could increase if auto industry experts are correct in their prediction that dealerships will gradually decrease spending on massive newspaper advertisements and instead direct readers to their Web sites.

Today, dealer Web pages focus on promoting the dealership — its products, services and people.

And because many dealerships have multiple franchises — selling Toyotas as well as Hondas, for instance — owners provide information on cars made by rivals. That's verboten on corporate sites but is done on independent sites.

Yet, because most shoppers visit the manufacturer's site first, dealers are less likely to try to make their sites sales tools and instead focus on items not covered by the big car companies.

USING THE NET

"The Web is another way to do business and communicate with customers, but it's not necessarily a vehicle sales tool," said David Abatsis, general manager at Acton Ford in Acton, Mass. The dealership uses its site to let people schedule service appointments, order parts, buy accessories such as truck bedliners and mud flaps and check out used cars, he added. Consumers also can print out service discount coupons from the site.

Acton Ford's site provides hot links to Ford Motor Co.'s Web page and to its preowned vehicle Web page, Abatsis said.

Dealer Web pages are mandatory for others, too.

"You have to be on the Web because it's an important [medium] that provides people information — and that keeps you in the game," said Rick Evans, owner of Huntington Beach Chrysler-Plymouth-Jeep in Huntington Beach, Calif.

But sales from the Web site aren't substantial, he added. "There's a lot of looking but not a lot of buying."

Sales are expected to increase as more consumers become comfortable using the Web to shop for vehicles, Evans said. □

Give the info, get the customer

Dealers may be able to attract more potential customers by providing more information on their Web sites, according to a recent report from J. D. Power and Associates. In the report, 46% of people who visited dealer Web sites found them somewhat useful, while 34% said they aren't very useful and only 20% found them very useful.

Those who didn't find dealer Web sites useful said the sites didn't provide enough information, didn't show inventory or contained information that the shopper already had, said Tom Libby, a director at J. D. Power's Troy, Mich., office.

"Dealer Web sites range from very sophisticated to incredibly simplistic," Libby said. — Bob Wallace

GemStone

CONTINUED FROM PAGE 51

dle a transaction and how to maintain state in a transaction. That's basic computer science stuff. We shouldn't have to write that over and over again."

GemStone's application server stores data in its "native-business-object" form, so a developer doesn't have to write the code that extracts the data from the object in order to store the data in a relational database, said Anne Thomas, an analyst at Patricia Seybold Group in Boston.

"It not only saves time, it reduces the number of errors that occur when you try to convert business objects into relational data," Thomas said.

Systems and Computer Technology Corp. (SCT) in Malvern, Pa., is using GemStone's product to help its application scale for thousands of users. The application server acts as the underlying technology for specifying the location of Common Object Request Broker Architecture (CORBA) objects and handling workflow and transaction services, said Frank Tait, vice president of business development and strategy at SCT.

"It's like a turbocharger on our applications," Tait said.

GemStone J 2.0 will start shipping this month, with general availability in December. Pricing starts at $4,995. □

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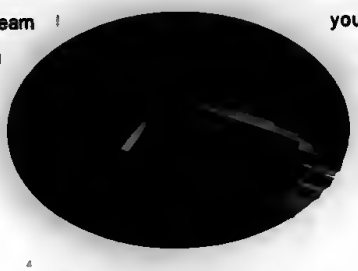

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The Enterprise Network

LANs • WANs • Network Management

Briefs

Top U.S. export markets for telecommunications equipment

(First six months of 1998)

Canada	$1.5B
Japan	$1.05B
Mexico	$1.0B
U.K.	$700M
Brazil	$480M

Total market: $8.95B

Source: Telecommunications Industry Association, Arlington, Va.

Net monitor helps apps revive

▸ *BMC software finds data locked in crashes*

By Cynthia Bournellis

USERS WANT more reliable applications — and vendors are working to deliver them.

BMC Software Inc., for example, is extending the reporting and monitoring capabilities of its Application Assurance Strategy products, adding the ability to recover transactions from an application that has crashed.

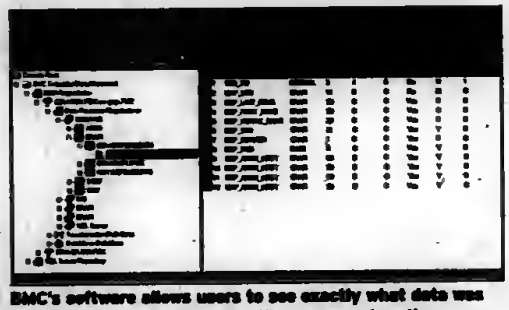
When an application goes down, the BMC software checks back-end databases to find which transactions were actually completed and compares that with its records of which transactions were being processed at the time of the crash. It then calls attention to those that weren't completed.

A similar recovery tool is EcoSnap from Compuware Corp. in Farmington Hills, Mich. IBM and Oracle Corp. make tools for recovering data as well, but for applications that are specific to their databases.

What makes these products different from other recovery tools is that they recover data in specific applications at the particular point in time that the business process took place, without having to recover the entire database. The benefit is a reduction in application downtime because the software recovers specific database objects used by the application without having to bring down the database for whole-system data recovery.

Eastman Chemical Co. in Kingsport, Tenn., uses BMC recovery software to do batch jobs

Network monitor, page 61



BMC's software allows users to see exactly what data was locked up in a crash, reducing the recovery downtime

Source: Bell Atlantic Corp.

Bell widens ADSL net to consumers

By Matt Hamblen

COMPANIES WANT more bandwidth for their telecommuters to work at home effectively. Several Baby Bells have pitched Asymmetric Digital Subscriber Line (ADSL) technology as the solution, but it's unclear when users may actually get relief from it.

Several carriers have announced trials of ADSL nationwide, with the most recent by New York-based Bell Atlantic Corp. on Oct. 5. Bell Atlantic plans to focus on the consumer market, although business users working at home also can use the service.

Infospeed DSL from Bell Atlantic will be offered in areas of Washington and Pittsburgh this fall and will come to New York and Boston early next year. The service is an "always on" link to the Internet, using copper lines that are already widely deployed and offering speeds up to 126 times that of a 56K bit/sec. modem.

Bell Atlantic announced three packages, running from $39.95 per month for a downstream connection of 640K bit/sec. to $109.95 monthly for a maximum downstream speed of 7.1M bit/sec. (see chart above).

Bell, page 61

Net overhaul succeeds despite risks

By Sharon Gaudin

The information systems manager at Intercontinental Corp. decided the company needed a new E-mail system — and that change started a snowball effect that has rebuilt the company's entire network infrastructure.

Jeffrey Scott, IS manager for Intercontinental, said his first focus was on switching E-mail systems from Microsoft Corp.'s Mail to Exchange; then he focused on making the system year 2000-compliant. He said those needs — plus the fact that he's running Windows 95 on the company's 50 or so desktops — showed it only made sense to move off the old 16-bit Novell Inc. NetWare software to 32-bit Windows NT 4.0.

After that was put in motion,

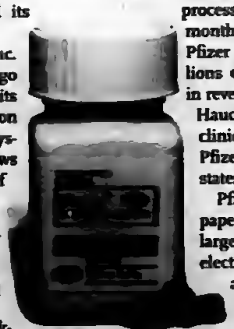
Net changes, page 61

Pfizer hopes document apps will speed FDA approvals

▸ *Delays in rollouts of popular drugs could cost millions a day*

By Roberta Fusaro

HOPING TO speed its drug-approval process, Pfizer Inc. said two weeks ago that it will replace its document conversion and distribution system with a Windows NT-based suite of products from several vendors, including Platform Computing Corp. and Compaq Computer Corp.



The New York-based pharmaceuticals company, which had $12 billion in sales last year, wants to cut the time it takes to prepare and ship electronic new-drug approval documents to the Food and Drug Administration (FDA). That could mean quicker time to market for its popular drugs, which include the impotency drug Viagra, cholesterol-reducing Lipitor and Zyrtec, an antihistamine. The software should help shorten the document conversion process by a matter of months — saving Pfizer potentially millions of dollars a day in revenue, said Walter Hauck, director of clinical systems at Pfizer, in a recent statement.

Pfizer had lots of paper on file and large repositories of electronic images, according to Paul Davis, a clinical systems analyst at Pfizer's Central Research & Development Center in Groton, Conn. The drugmaker needed to convert both to the Portable Document Format, which is becoming the standard for filing electronic documents.

Pfizer, page 61

The Enterprise Network

LANs • WANs • Network Management

Briefs

Oracle messaging

Oracle Corp. in Redwood Shores, Calif., this week will announce the availability of the corporate and hosting updates of Oracle Internet Messaging 4.2. The updates provide electronic messaging, directory and scheduling services to standards-based messaging client applications such as Netscape Communications Corp.'s Messenger, Qualcomm Inc.'s Eudora Pro Lite or Microsoft Corp.'s Outlook Express. Pricing information can be found at Oracle's Web site (*www.oracle.com*).

Security module added

Innosoft International Inc. in West Covina, Calif., last week announced an update to its Innosoft Directory Services product suite that includes support for cryptography from RSA Data Security Inc. in Redwood City, Calif. The RSA security module will be available as an add-on later this month. The add-on costs $2,000.

Fax servers to ship

Fax server software maker RightFax Inc. in Tucson, Ariz., announced this week that its Windows NT-based RightFax 6.0 family of fax servers will ship Nov. 16. New to the line of server software is enhanced integration with Microsoft Corp.'s Outlook E-mail client and its Exchange messaging server, officials said. Pricing information wasn't available.

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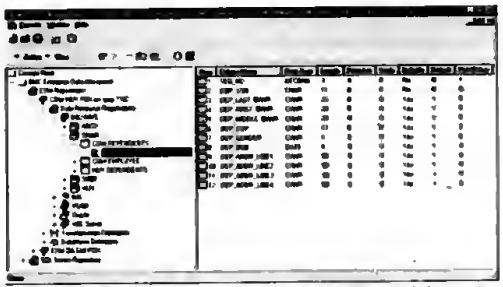

BMC's software allows users to see exactly what data was locked up in a crash, reducing the recovery downtime

Bell Atlantic's ADSL offer:

Download speed	Monthly cost
640K bit/sec.	$39.95
1.6M bit/sec.	$59.95
7.1M bit/sec.	$109.95

Time it takes to download a 16M-byte version of Internet browser software:

Speed	Time
56K bit/sec.	5 minutes
640K bit/sec.	30 seconds
1.6M bit/sec.	11 seconds
7.1M bit/sec.	3 seconds

Source: Bell Atlantic Corp.

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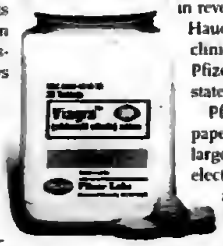

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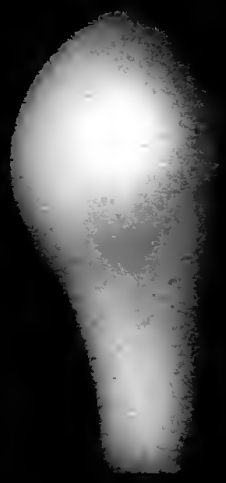

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* Source: International Data Corporation

Net changes risky

CONTINUED FROM PAGE 57

tion, Scott decided to replace the company's dial-up Internet connection with a dedicated line.

He also brought in a proxy server and Microsoft Internet Information Server so he could build a Web site.

Now that those changes have been made, Scott is working on switching from a mainframe-based database to Unix.

POSSIBLE PROBLEMS

Some industry watchers warn that rolling out too many upgrades at once could pose problems, but Intercontinental managed to upgrade its relatively small system without much trouble. "That way they can help our customers faster," Scott said.

Scott said bringing in the direct Internet line and upgrading to Exchange and Outlook has made it easier and faster to send E-mail — so it's easier for employees to communicate with one another and with customers.

Scott, who said the software and hardware costs added up to about $50,000, didn't face much opposition to the upgrades from executives on the business side.

"We just needed to get off MS Mail and the rest kind of rolled off that," he said. "I figured there was no better time than the present to move everything over." Scott said he began switching the old Unisys mainframe over to SCO Unix about four months ago, when he was in the middle of migrating to NT and adding Exchange and Outlook. He said he expects mainframe-to-Unix migration, which is being done piece by piece, to be finished this month.

"The separate migrations didn't affect each other, really," he said. "They're separate entities."

Still, making that many changes at once can be a risky proposition, according to Dan Kusnetzky, an analyst at Framingham, Mass.-based International Data Corp., a sister company to *Computerworld*.

"Anytime anyone makes wholesale changes in their environment all at once, I would call that foolhardy," Kuanetzky said. "You should put [in] one new system and maintain the new and the old until you're sure it's working. Then you do the same thing with another system. It's just too much to do in one fell swoop. You need time in between each move to make sure everything is working before you move on to the next step," he said.

Scott, who had only one NetWare server to switch over to Windows NT, said it was "scary" how easily the changes were made. All were completed in an afternoon.

But Dave Bernauer, CIO at Walgreen Co., a national drugstore chain based in Deerfield, Ill., advises caution.

"There's always something," said Bernauer, who handled a major migration for Walgreen. "The nightmares you hear about are always the unknowns that crop up as you are going. As you continue to roll out, problems crop up — bugs in software from vendors, problems in application code that worked fine at lower volumes. But as you continue the rollout, you find bottlenecks that you hadn't seen before."

Scott said he expects to wrap up the major part of Intercontinental's migration by the end of this month. □

How Intercontinental rebuilt its network infrastructure:

- Replaced NetWare with Windows NT
- Moved from Microsoft Mail to Exchange
- Upgraded the 16-bit server to match its 32-bit clients
- Installed Microsoft's Outlook on all the desktops
- Brought in a proxy server and Microsoft's Internet Information Server to build an Internet presence
- Migrated the mainframe database to an Oracle database on a Unix box

Pfizer hopes to speed approvals

CONTINUED FROM PAGE 57

In addition, Adobe Systems Inc.'s Capture conversion software, running on Windows 95, proved inefficient and unstable, he said. "We had five or six consultants whose job was to watch [the processing PCs] to make sure overnight rendering jobs were completed and to restart them if they didn't," Davis said.

Typical approval documents are about 200 pages long, but can sometimes run up to 4,000 to 5,000 pages. Now, those five or six processor-watchers are able to work on other, more productive tasks.

And as the company fine-tunes its electronic submissions process, "that makes us attractive for other pharmaceutical companies to partner with us to do joint submissions," Davis said.

Platform's LSF batch processing suite can process up to 60,000 pages in 24 hours

Platform's LSF batch processing suite, which replaced the Adobe software, can process as many as 60,000 pages in 24 hours, Platform said. Davis said the system is scalable, able to handle high work volumes and can function around the clock.

The suite includes workload management software from Toronto-based Platform and conversion software from Infodata Systems Inc., running on three racks of hardware built in Houston by Compaq Enterprise Consulting Services. Pfizer's beta testing actually began six months ago; the system now runs on 18 NT-based Compaq Professional workstations. Pfizer eventually will roll out the system to more than 100 workstations. The 18 quad-processor boxes split the job among 72 nodes, which provide more efficient load-balancing of conversion jobs, Davis said.

The system also has a built-in watchdog feature. "If multiple workstations fail, they are just taken out of the loop of available processors to do work" and the work is rerouted, he said.

The bundling of Platform's software with NT gives Pfizer maximum throughput on its NT servers with a minimal computing investment and helps balance the processing load, said Carolyn di Cenzo, a principal analyst at San Jose, Calif.-based Dataquest. "People more and more are requiring that their software do more work for them," she said. □

Bell widening ADSL net to consumers

CONTINUED FROM PAGE 57

The consumer-oriented service promises repairs within 24 hours, while a business-grade DSL with four-hour repairs for outages and network management services will be deployed next spring, a spokesman said.

Bell Atlantic officials conceded it will need to make its ADSL network more ubiquitous to sign up companies that have dozens of workers spread throughout a metropolitan area.

"The bandwidth issue is a big problem for companies with telecommuters," said John Harris, managing director at the Information Management Forum in Atlanta, a user group of 100 large companies in the U.S. and Canada.

"Telecommuters want bandwidth to do the same things at home they do at work, and they feel it when they try to download a PowerPoint presentation and it takes them 25 minutes," he said.

Still, Harris said he hasn't heard companies talking much about ADSL. "This is all new and kind of dizzying. . . . People are saying, 'How good is this?' and 'Should I wait for the next new thing?' " He said people are skeptical partly because of early hopes for Integrated Services Digital Network service that didn't pan out.

Analysts also have been disappointed about carrier deployment of ADSL, with several carriers last year saying they would deploy, only to retrench this year. "I think it's good that Bell Atlantic is finally out there doing something," said Claudia Bacco, an analyst at TeleChoice Inc. in Tulsa, Okla.

ADSL modems and other equipment have some standards, but others are needed for it to expand and gain wider acceptance, she said. Equipment makers will need to create interoperability standards for wider deployment of ADSL, Bacco said.

Companies also will be concerned about cross-talk interference when thousands of DSL lines are deployed, Bacco said.

Still, ADSL could be "a great alternative for telecommuters" because it provides enormous bandwidth for access to the Internet, she said. □

Network monitor

CONTINUED FROM PAGE 57

on a DBa mainframe. Because the software runs the jobs faster, it has improved the process by 50%, reducing application downtime, said Mike Stallard, a systems associate at Eastman.

Sue Aldrich, an analyst at Patricia Seybold Group in Boston, said the new products provide IT groups with a complete package that offers application availability, performance and service-level reporting.

BMC also has released software that replicates transactions residing on the mainframe to other platforms, updating databases as changes occur. Houston-based Continental Airlines uses BMC's new Change-DataMove software to update critical information on purchase orders.

Changes made to purchase orders are updated in real time on the mainframe and propagated to a PC. "With this, we only get the updated information that is integral to what we are doing," said Hulon Cox, a senior information specialist at EDS Corp., a Houston-based systems integrator that manages Continental's mainframes.

Three new partnerships expand BMC's reach. The Baan Co. will resell BMC's Patrol application management suite for its data management products. IBM will resell BMC's SQL-BackTrack application recovery product with IBM's Adstar Distributed Storage Manager, while Informatica Corp. will integrate software that provides real-time access to mainframe databases with BMC applications. □

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is the best way to

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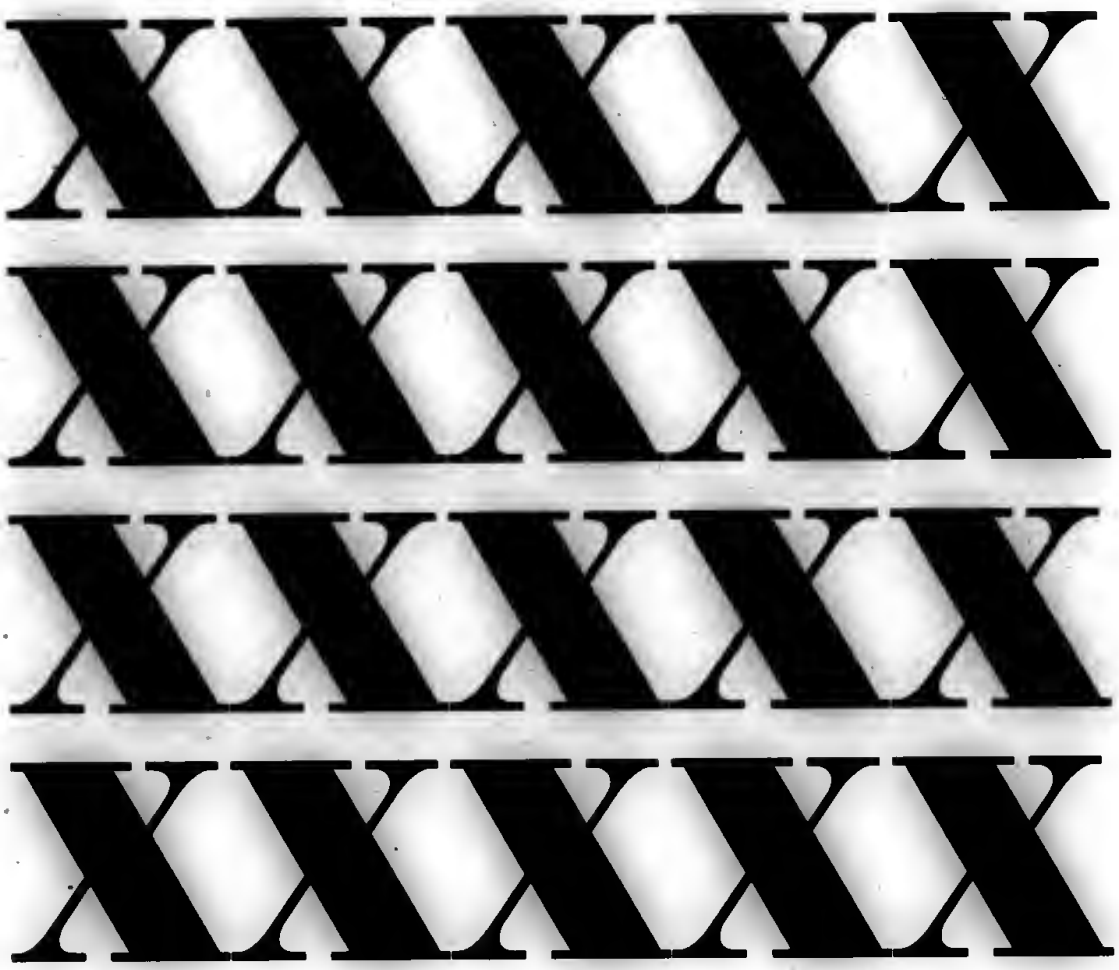

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Software

Database • Development • Operating Systems

Briefs

Euro support added

Manufacturing application vendors Maplex Inc. in Waltham and QAD Inc. in Carpinteria, Calif., say both added euro currency compliance to their software packages. Maplex released a Maplex XA upgrade that includes euro support and a Java-based user interface. QAD announced a tool kit designed to handle euro conversions without software upgrades.

New Office version

Microsoft Corp. has added a fifth edition, called Premium, to its Office 2000 suite, which is due early next year. The five editions — Standard, Small Business, Professional, Premium and Developer — will offer increases in functionality instead of trade-offs as users move up. Premium, for example, will include everything in Professional, as well as the FrontPage Web site tool and PhotoDraw suite for business graphics.

Manufacturing analysis

Software Software Inc. in Sunnyvale, Calif., has released a data analysis bundle for manufacturers that uses SAP R/3. The Software Knowledge Warehouse for SAP software includes manufacturing analysis applications that run in Web browsers, plus tools for extracting data from R/3 and grouping the information for data warehousing.

DEEP THOUGHTS

What kind of enterprise resource planning data do you plan to analyze?

Financial	84%
Sales	62%
Marketing	51%
Supply chain	39%
Manufacturing	35%

Base: July survey of 74 IT managers and business users who are members of The Data Warehousing Institute; multiple responses allowed

Source: The Data Warehousing Institute, Gaithersburg, Md.

PRODUCT BREAKDOWN

Where Corel's sales come from:

- Productivity software
- Graphics software
- Multimedia/communications software

Total 1997 sales: $260.6M

Source: Hoover's, Inc., Austin, Texas

OFFICE SUITES

Corel revenue up; users still flock to Office

By David Orenstein

COREL CORP.'s improving finances have bolstered the faithful, but analysts said they expect medium-size and large companies to continue abandoning its WordPerfect office software.

That's because Microsoft Office is the "de facto corporate standard," said Mary Wardley, an analyst at Framingham, Mass.-based International Data Corp., a sister company to *Computerworld*. Neither Corel's package nor Lotus Development Corp.'s SmartSuite really competes with Microsoft Corp.'s suite for corporate business anymore, she said.

Corel's finances show it has brought costs in line with revenue, but the office suite market hasn't changed, said Rob Enderle, an analyst at Giga Information Group in Santa Clara, Calif. Microsoft Office holds more than 90% of the market, IBM subsidiary Lotus holds more than 7%, and Corel has a scant 1%.

"Fundamentally, they really are looking like a company that needs another business model," Enderle said.

Pressure to migrate to Microsoft Office will increase when Office 2000 is released, because

Corel, page 68

Drilling for financials

▸ *Centralized data helps keep rigs online*

By Thomas Hoffman

Pride tracks the productivity of drilling equipment with a multidimensional database

WHEN EXECUTIVES at Houston-based Pride International Inc. drill down for data, they take that metaphor quite literally. The information they seek is sometimes located thousands of feet beneath the ocean floor.

Pride, a $1 billion on- and offshore drilling contractor, has used a multidimensional database system since January to track the financial performance of its entities and the productivity of its drilling equipment.

Pride needed the system because it had no easy way to gather and analyze information from the 15 companies it has acquired during the past four years, said Pride CIO Yvonne Donohoe.

"When you try to combine [systems and procedures] across companies and you don't have time to assimilate them into one standard [data format], you end up with five or six streams of data coming in that [look] different" from one another, Donohoe said.

A growing number of companies is using dimensional data modeling to compare business performance indicators — such as profits and return on equity — to a region, channel or product, said Henry Morris, an analyst at Framingham, Mass.-based International Data Corp., a sister company to *Computerworld*.

To provide its executives with a consistent view of operational costs and revenue across regions, Pride installed Information Builders Inc.'s WorldMart, an analytical data mart. Pride chose WorldMart because it was one of the few data warehouses that interfaced with the Denver-based J. D. Edwards World Solutions Co.'s OneWorld enter-

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DOUBLE THE FUN

	WORLDWIDE SALES				
Technology/area	1997	1998*	1999*	2000*	2001*
Internet commerce	$12.4B	$32.3B	$67.1B	$132.9B	$277.2B
Electronic license distribution	$5B	$15B	$35B	$60B	$89B
Electronic software distribution	$208M	$608M	$1.4B	$3.1B	$5.9B

*Projected

Source: International Data Corp., Framingham, Mass.

Electronic licensing gains in popularity

▸ *Expected to be corporate standard by 2008*

By David Orenstein

ALTHOUGH NOW CONFINED to early adopters, the benefits of electronic software license distribution eventually will make the practice the standard way licenses are handled, according to users and an analyst who attended the Electronic Commerce for Software Conference in Santa Clara, Calif., last week.

Companies will spend $89 billion on electronically distributed software licenses in 2001, predicted International Data Corp. (IDC) analyst Steve McHale. By 2008, virtually all corporate licenses will be electronic, according to a recent report by IDC, a sister company to *Computerworld*.

Electronic license distribution lets corporate software buyers manage and modify their software use much more quickly than is possible with a system of paper purchase orders. It's a

Licensing, page 66

Software

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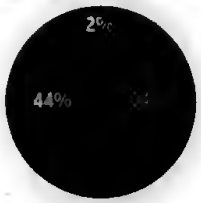

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Licensing, page 66

Bank tracks IT work with Web software

By Roberta Fusaro

FOR THE PAST few years, Pittsburgh-based Mellon Bank Corp. has been using two kinds of workgroup tracking software to manage its internal information services department. But the two systems aren't year 2000-compliant.

So the financial institution last week said it decided to roll out Account4 software from Newton, Mass.-based Work Management Solutions Inc. The Web-based software will let Mellon manage and track the work of its 1,500 applications developers — a subset of its software engineering department — located in several cities.

The Account4 software will let Mellon track information technology work and resources, log project development and save that information for reuse, bank officials said. Best practices can be shared among project teams that way.

The company already was using two forms of tracking software: One was an application Mellon developed internally, and the other was software from a vendor that has since gone out of business. "It's more financially feasible to go with one application that is year 2000-ready," said Milan Burry, a vice president at Mellon Bank. The goal was to ease administration by moving from a mainframe-based system to a thin-client system.

According to Work Management Solutions, Account4 was designed to enable real-time access to a central repository of information pertaining to a workgroup — whether its members work in the office, at home or across the world. An Oracle or SQL Server database stores all time and expense sheets, assignments, account profiles, financial documents and progress reports, the vendor said.

Burry said it cost about $20,000 to integrate Account4 with current systems: $15,000 for the server and $5,000 for Oracle licensing for the databases. □

Licensing

CONTINUED FROM PAGE 65

different from electronic software distribution, in which the software itself is electronically transferred. That market, where the benefits are limited to applications such as games and software components, is expected to grow slowly, according to the IDC report.

McHale said there are no clear leaders or standards in the marketplace, and software makers and their resellers have yet to hammer out how they will approach end users as electronic distribution becomes the norm.

But electronic licenses have an enthusiastic foothold among semiconductor companies that buy large quantities of electronic design automation software.

Texas Instruments Inc.'s software asset management team in Dallas has experienced the benefits firsthand. The company works with scores of vendors, but obtaining new licenses for design teams can be managed quickly with an electronic system. Now, "it typically takes a day," while on paper "it might have taken weeks," said team member B. J. Parks.

Likewise, E-mail-based licensing lets users get the licenses they need quickly. But bottlenecks still exist, said Georgios Kabitoglou, the TI software asset management team's global license manager. Kabitoglou said vendors need to develop monitoring and security systems that will give customers the freedom to issue licenses to users without having to ask the vendors first. □

Drilling

CONTINUED FROM PAGE 65

prise resource planning system, which Pride is installing.

Donohoe said she expects 90% of the OneWorld system to be rolled out by year's end, with inventory and a handful of other functions added to Pride's offices in Venezuela and Argentina in next year's first quarter. Prior to installing WorldMart on its Hewlett-Packard Co. servers running Windows NT, it often took two weeks or more for Pride executives to obtain a report that would compare, say, the return on equity from equipment used in Colombia and Indonesia.

By providing its executives with immediate access to that information for faster decision-making, Pride expects its $300,000 data warehousing investment to pay for itself after its first full year of operation, Donohoe said.

"The key statistics we need from a drilling rig is uptime," she said. When a rig goes down, "it's major money." □

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Corel

CONTINUED FROM PAGE 65

it features strong Web publishing capabilities, according to Enderle. However, WordPerfect users can stay the course without fear of an imminent company collapse, he said.

"Right now it doesn't look like they're going to go out of business tomorrow," Enderle said.

In the third quarter, the Ottawa-based desktop software maker's revenue rocketed to $71.1 million from $48.8 million a year earlier. The company had a net loss of $7.8 million, compared with $37.7 million in the third quarter of 1997. A $15.9 million charge for layoffs announced at the end of the second quarter kept Corel from showing a profit, but executives said they expect a return to profitability by the end of the year.

Corel's revenue growth came from several new graphics software releases. Office suite sales remained flat, company officials said.

Still, WordPerfect users insist that the suite is worth hanging on to because its features and technology are superior to Office.

Dolores Wilkie, network specialist at Maryland General Hospital in Baltimore, praised the heaps of clip art Corel includes and the suite's thorough compatibility with all earlier versions. Most end users at the hospital have stayed with WordPerfect, which once was a standard but isn't required anymore, she said. The "reveal codes" function that allows users to see exactly how the software is formatting copy is "worth its weight in gold," she added.

Bruce Johnson, director of information services at New York law firm Robinson, Silverman, Pearce, Ahronson & Berman PC, said Corel has been very responsive to its strong base in the legal community and remains the best suite for legal documents. "I have seen nothing in the last year to shake my confidence. The firms still using WordPerfect have [fewer] problems than the ones using Word," Johnson said. However, he acknowledged that some firms had to begin using Office because so many clients use it. □

Time's up

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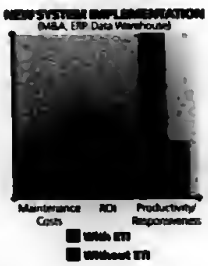

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Corel will let users program in Visual Basic

By David Orenstein

THE NEXT RELEASES of Ottawa-based Corel Corp.'s office productivity and graphics applications will allow users to customize and program the software with Microsoft Corp.'s Visual Basic for Applications (VBA) language. Corel and Microsoft announced the feature at last week's Microsoft Professional Developers Conference.

The technology will appear first in the upcoming upgrade of Corel's WordPerfect Suite, due early next year, and later in Corel Draw and other graphics software.

Corel users currently can customize applications with Corel's PerfectScript, but Corel wanted to standardize on a more versatile tool, said Derek Burney, senior vice president of engineering at Corel. "It became obvious that VBA is the best tool for all our users," he said.

Gordon McComb, a professional macro developer in Oceanside, Calif., said Corel's adoption of VBA could save users a lot of time and effort. Current WordPerfect users have trouble accessing corporate databases with Corel's scripting language and have often needed to write separate applications in Visual Basic. With VBA, many users won't have to develop separate applications or license Visual Basic.

VBA also will let Corel's users incorporate ActiveX objects into their applications, giving them access to a wide range of client/server objects that Corel's script couldn't easily integrate, McComb said.

Applications written in Corel's script will still run in the new version, and a converter will be available to port them to VBA, Burney said. □

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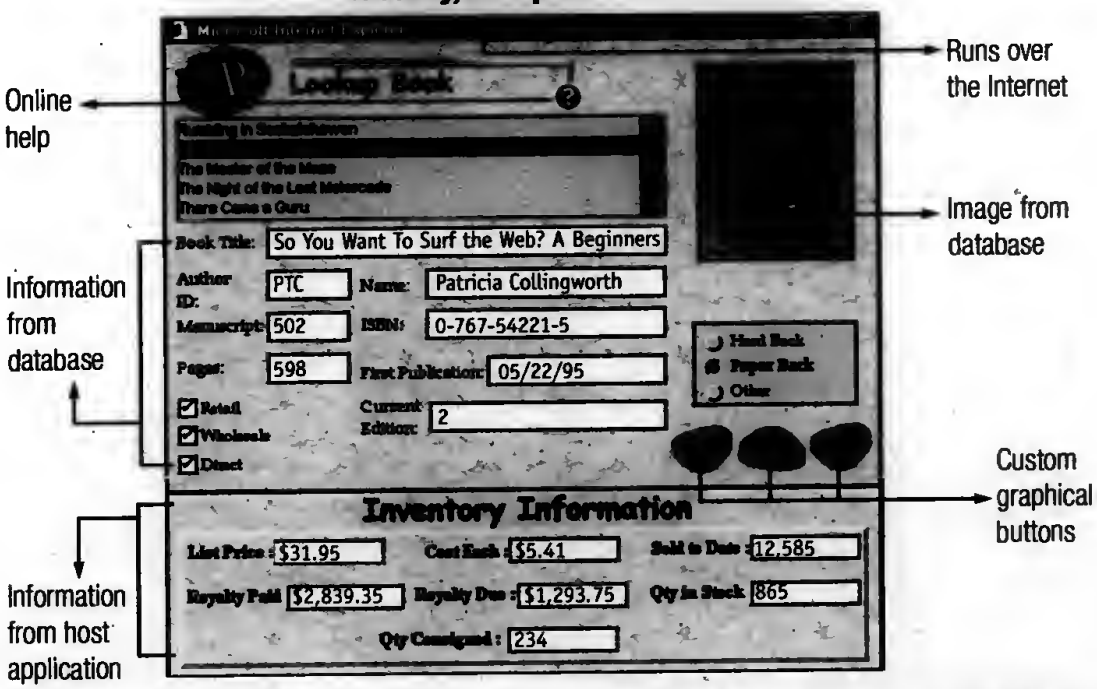

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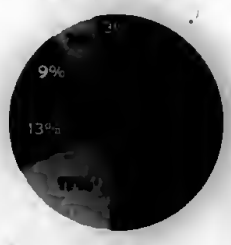


- Lower service price
- Better coverage
- New phone
- More enhanced services
- Better sound quality
- Other/Don't know

Base: 972 wireless phone users

Source: The Yankee Group, Boston

Bigger Win CE devices

Microsoft Corp. has announced a new version of its Windows CE operating system to support a class of larger handheld computing devices, code-named Jupiter machines, that will sell for about $1,000. Windows CE 2.11 enhances remote access support, includes a pocket version of Microsoft's Access database, opens attached E-mail files and supports Rich Text Format, Office 95 and 97 files and Internet Message Access Protocol 4, which should allow easier access to Microsoft Exchange servers.

K6-II aids AMD profits

Aided by strong sales of its K6-II processors, Advanced Micro Devices Inc. in Sunnyvale, Calif., has returned to profitability, posting third-quarter earnings of slightly more than $1 million. A year earlier, AMD had reported a loss of $68.8 million. The K6-II was announced earlier this year by the company [illegible]

Unix vendors set to raise high end

By Jaikumar Vijayan

WINDOWS NT may be driving a lot of change at the low end of the workstation market, but at the high end, at least some vendors are continuing to give users reasons to stay with Unix.

IBM, for instance, recently bolstered its RS/6000 Unix workstation family with its highest-end 64-bit Power3 chip and a new graphics card that should double application performance over existing systems, according to the company. It's the first commercial implementation of the Power3 chip, the same chip that powered IBM's chess-playing Deep Blue supercomputer.

WORKSTATION MARKET

The new RS/6000 43P Model 260 includes the following:

- One or two processors.
- Four gigabytes of memory.
- More than 27G bytes of internal storage.
- A starting price of $19,000.

The system delivers enough horsepower to differentiate it from NT boxes for a reasonably small price premium, said Mike Osborne, a researcher at Chevron Petroleum Technology Co. in La Habra, Calif.

Chevron uses Unix workstations from IBM and Silicon Graphics Inc. (SGI) to model oil and gas fields for exploration. Suitably configured NT boxes may be capable of doing the same job, Osborne said, but not as efficiently or reliably as Unix — at least for the moment.

RS/6000 43P MODEL 260 UNIX WORKSTATION	INTELLISTATION Z PRO NT
▶ Supports up to two 200-MHz Power3 64-bit RISC chips	▶ Supports up to two 450-MHz Pentium II Xeon chips
▶ Up to 4M bytes of cache per processor	▶ 512K bytes of cache
▶ Up to 4G bytes of RAM	▶ Up to 2G bytes of RAM
▶ Up to 27.3G bytes of internal storage	▶ Up to 81.9G-byte hard disk
▶ Starts at $19,000	▶ Starts at $4,150

"I don't think there is anything on the horizon that is going to crank up price/performance enough on [Wintel systems] to match our [high-end] needs," at least until Intel Corp.'s Merced chip starts shipping, some time in the second half of next year, Osborne said.

Users such as Chevron are the biggest hope for Unix workstation vendors, which increasingly are getting squeezed out of the low-end market by Wintel workstations. Framingham, Mass.-based market research firm International Data Corp., a sister company to *Computerworld*, predicts sales of workstations running NT will grow at more than 49% annually between 1997 and 2001.

Unix vendors have been responding by dropping prices sharply on their small systems [CW, Oct. 5], while bolstering their high end with faster

Unix vendors, page 77

HIGH-CAPACITY FLOPPY DRIVE PLAYERS

	Sony HiFD	Iomega Zip	Imation SuperDisk
Disk capacity	200M bytes	95M bytes	120M bytes
Compatible with 1.44M-byte floppies?	Yes	No	Yes
Disk speed	3,600 RPM	2,945 RPM	720 RPM (2X version due Q4 '98)
Drive price	$199 external	$119 external $99 internal	$149 external $89 internal
Single disk price	$13 to $15	$10 to $15	$10 to $15
Available interfaces	Parallel port (IDE and PC Card due next year)	Parallel port, SCSI, IDE, PC Card (USB next month)	Parallel port, IDE, USB, PC Card

New floppy alternatives no easy sell

▸ *Corporate market sees Zip, Jaz as standard*

By Nancy Dillon

STEVEN GOLDBERG, manager of client systems at consultancy PricewaterhouseCoopers in New York, said he would love to junk the more than 30,000 floppy drives his road warriors lug around.

But, until recently, that wasn't an option. His users call on a wide variety of client companies, and floppy drives are a standard way to exchange documents.

So anything that comes to replace them must be able to use all the data already on disks. That hasn't been true with the proprietary products that have dominated the market, but he said he hopes to find a fit with one of the newest types of drives.

Those include the 200M-byte HiFD drive from San Jose, Calif.-based Sony Electronics Inc., which is due next month, and the 120M-byte SuperDisk Drive (also called the LS-120), which was announced last year by Oakdale, Minn.-based Imation Corp. (see chart).

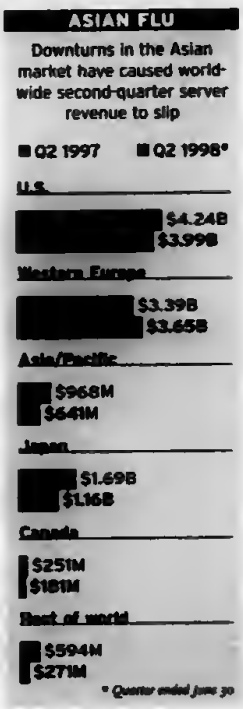
Analysts said consultancies such as Goldberg's are among the few types of organizations expected to invest in floppy alternatives early on. Factors working against widespread corporate adoption include high

Alternatives, page 77

Snapshot

ASIAN FLU

Downturns in the Asian market have caused worldwide second-quarter server revenue to slip



Source: Dataquest, San Jose, Calif.

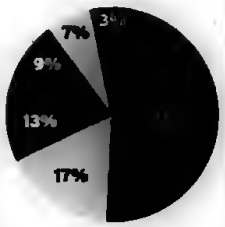
Servers & PCs

Large Systems • Workstations • Portable Computing

Briefs

WIRELESS LURES

What would most keep you from changing your wireless phone carrier?



- Lower service price
- Better coverage
- New phone
- More enhanced services
- Better sound quality
- Other/Don't know

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Unix vendors set to raise high end

By Jaikumar Vijayan

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Additions to IBM's Unix and Windows NT workstation lines

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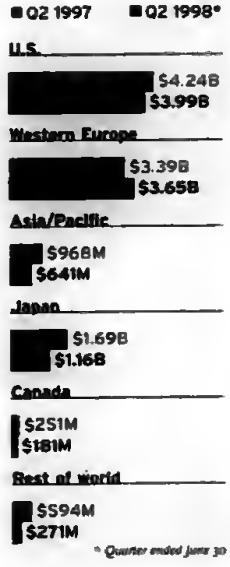

* Quarter ended June 30

Source: Dataquest, San Jose, Calif.

NEW PRODUCTS

LG ELECTRONICS has announced Phenom Express, a handheld PC based on Microsoft Corp.'s Windows CE operating system.

According to the Englewood Cliffs, N.J., company, the device includes a built-in 56K-bit/sec. software modem, 32M bytes of RAM and an 8-1/8-in. color screen. It has an E-mail/Internet setup wizard and a battery designed to last 12 hours. A VGA-out port allows connection to monitors, and a built-in infrared port enables printing and communication with other handheld PCs.

Phenom Express costs $899.

LG Electronics
(212) 684-6300
www.lgphenom.com

HEWLETT-PACKARD CO. has announced the SureStore T20, a 20G-byte tape drive for backup of small-business servers or peer-to-peer networks.

According to the Palo Alto, Calif., company, the drive offers rates up to 120M bytes per minute. For backup of Windows NT and NetWare servers, the drive comes with Stac Inc.'s Replica Backup software. HP Colorado Backup II is bundled for backup of Windows workstations or peer-to-peer networks.

An internal drive costs $519, and an external drive costs $629.

Hewlett-Packard
(650) 857-1501
www.hp.com

TRANS 2000 INC. has announced Gemini, a desktop PC designed to take up less space than a conventional monitor.

The Los Angeles company said the entire system is 8 in. deep. It has a 14-in. 1,024- by 768-pixel flat-panel display, a 233- or 266-MHz Pentium processor, up to 256M bytes of RAM, a 4G- or 9G-byte hard drive, a 24-speed CD-ROM and an Ethernet/Fast Ethernet LAN interface.

Pricing starts at $1,995.

Trans 2000
(562) 908-6814
www.trans2000.com

TATUNG SCIENCE AND TECHNOLOGY INC. has announced Compstation 4360, a Peripheral Component Interconnect-based (PCI) quad-processing workstation.

According to the Milpitas, Calif., company, the system uses four 360-MHz UltraSPARC II processors from Sun Microsystems Inc. Standard configurations include Sun's Solaris 2.6 operating system, 1G byte of RAM and a 9G-byte hard drive. Compstation has a 19-in. rack-mountable chassis design and supports two 66-MHz 64-bit PCI devices or four 33-MHz 64-bit PCI devices.

Pricing starts at $38,290

Tatung Science and Technology
(800) 659-5902
www.tsti.com

ACER AMERICA CORP. has announced AcerPower 4100, a desktop PC for networked environments.

According to the San Jose, Calif., company, the system incorporates a 333-, 350- or 450-MHz Pentium II processor from Intel Corp. It has a 100-MHz front-side bus, integrated PCI 10/100 Ethernet capabilities, 32M bytes of RAM and a hard drive with between 4.3G bytes and 8.4G bytes of storage.

Pricing ranges from $1,225 to $1,799.

Acer America
(408) 432-6200
www.acer.com

AURORA TECHNOLOGIES INC. has announced the XP7 Expansion Tower, hardware for increasing a system's PCI capabilities.

The Waltham, Mass., company said the tower ($1,200) uses one host system slot to provide seven expansion slots. It was designed to give low-cost PCs and workstations the I/O capacity needed to support enterprisewide activities. It works with any system with a PCI 2.1 bus and supports a range of PCI 1.0 and 2.1 bus cards, including graphics cards, serial controllers and Ethernet adapters.

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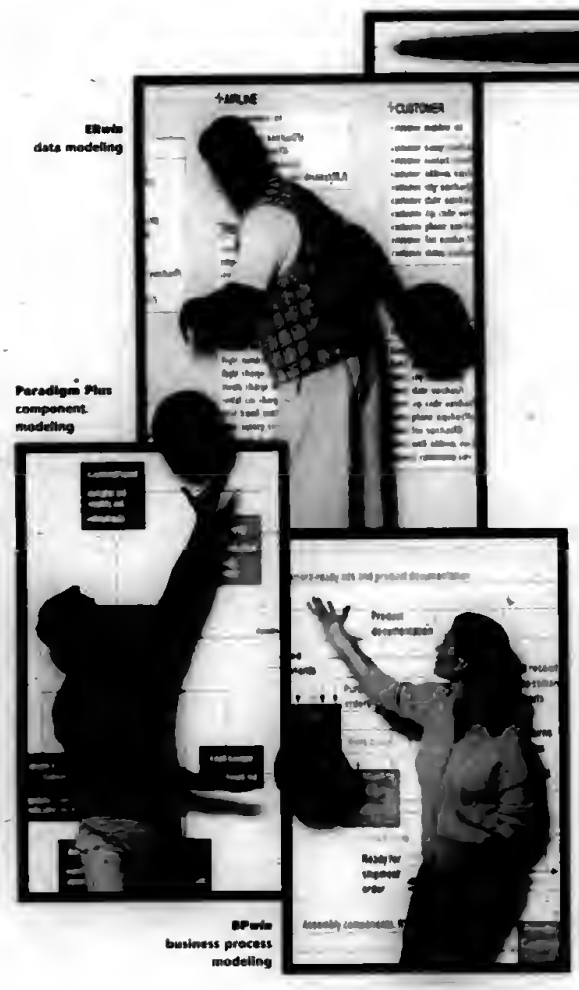

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And in
this corner..

COMDEX

technology's
main event

Alternatives

CONTINUED FROM PAGE 73

price, the rise of networks and the fact that Iomega Corp.'s Zip and Jaz drives are the de facto standards in creative-services and publishing departments, which were early adopters of floppy alternatives.

"We're definitely hindered by 1.44-Mbyte floppies. . . . [Their low capacities] force people camped at client sites to use slow phone lines for backup," Goldberg said. Adding another removable drive to the laptop bag, such as a Zip, could provide more breathing room, but Goldberg said he's "extremely sensitive" about weighing his users down.

Unlike most information technology buyers, Goldberg said he's willing to pay "whatever" the best new drives cost. "Because of the nature of our business, we can cost-justify them pretty easily," he said.

In the larger market, adoption of high-capacity units has been slower than expected because of standards "confusion," said Jim Porter, an analyst at Mountain View, Calif.-based Disk Trend Inc. He said 100 million floppy drives will ship worldwide this year, compared with 14.7 million high-capacity alternatives. "But looking ahead, standard floppy shipments are pretty flat, whereas high-capacity shipments are steadily growing," he said.

Porter predicted that, in the end, the most critical technical specification in deciding the removable standard will be price.

Price is indeed the key for Ken Keala, information systems manager at Granny Goose Foods Inc. in Oakland, Calif. He recently installed a wide-area network to handle file transfers among dispersed locations, so he sees little reason to pay a premium for high-capacity floppy drives.

"If cost weren't a factor, we would of course go for a high-capacity floppy over a regular one," Keala said. "But . . . we have very little use for [standard] floppy drives these days. They're just something we include because they are cheap, and we use them on occasion."

Even after prices come down, the HiFD and SuperDisk will still face difficult battles in the creative-services and prepress industries. Analysts said those groups have already moved beyond the floppy and standardized on the Zip and Jaz drives.

"To transition again would be hard, if not impossible," said Rob Pomon, network administrator at design firm Landor Associates in San Francisco. □

Unix vendors

CONTINUED FROM PAGE 73

processors and better graphics subsystems.

IBM's announcement, for instance, is expected to be the precursor to a series of similar announcements during the next few months from rivals such as Sun Microsystems Inc., SGI and Compaq Computer Corp., said David Witzel, an analyst at D. H. Brown Associates Inc. in Port Chester, N.Y.

Sun, for example, is expected to start shipping systems based on its UltraSPARC III chip early next year, around the same time that new Compaq boxes based on the next-generation EV6 Alpha chip start shipping. Meanwhile, Hewlett-Packard Co.'s workstations based on the new 64-bit PA-8500 chip will start shipping by year's end.

In that sense, "IBM is just making sure they are staying in step with the competition" with this announcement, Witzel said. □

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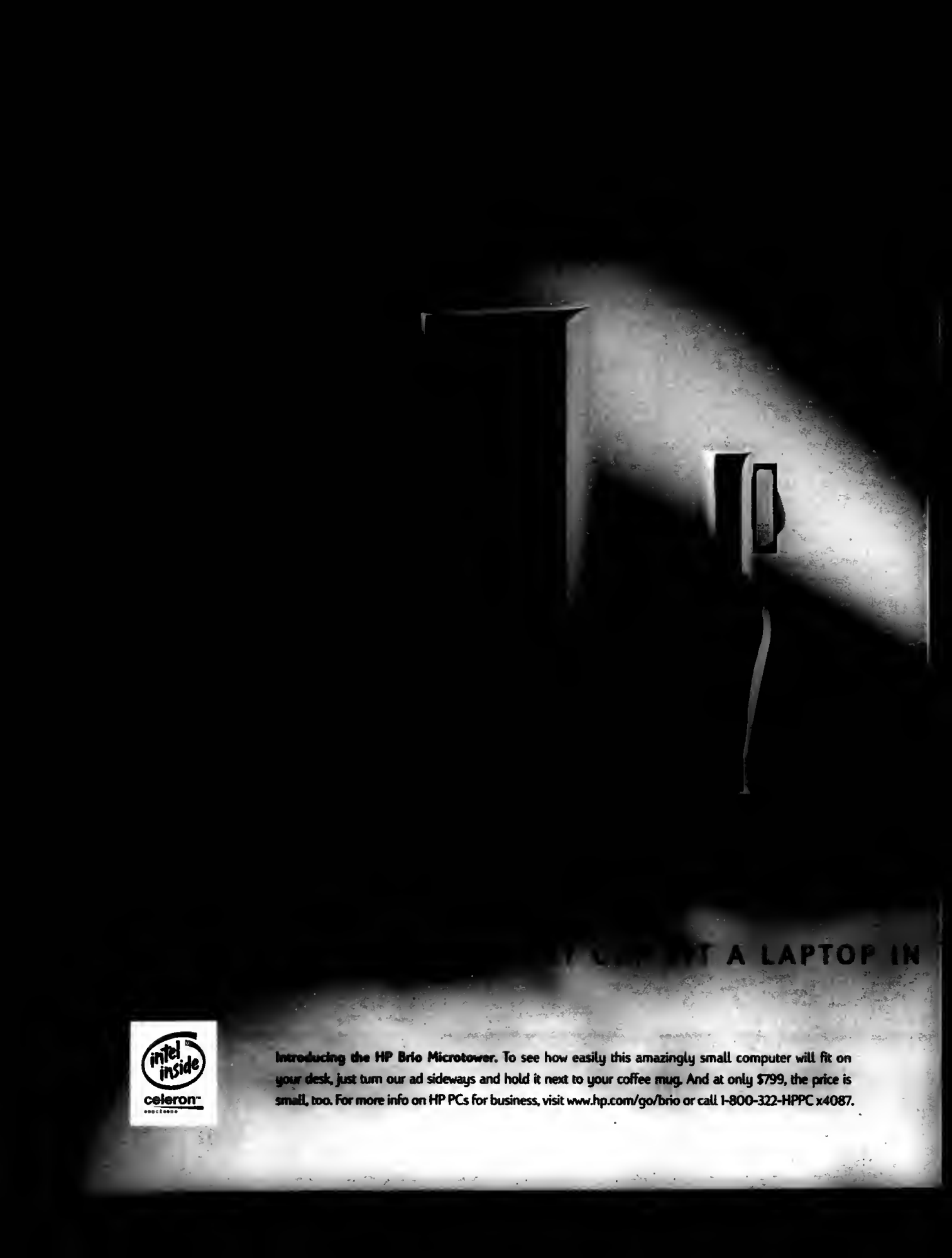
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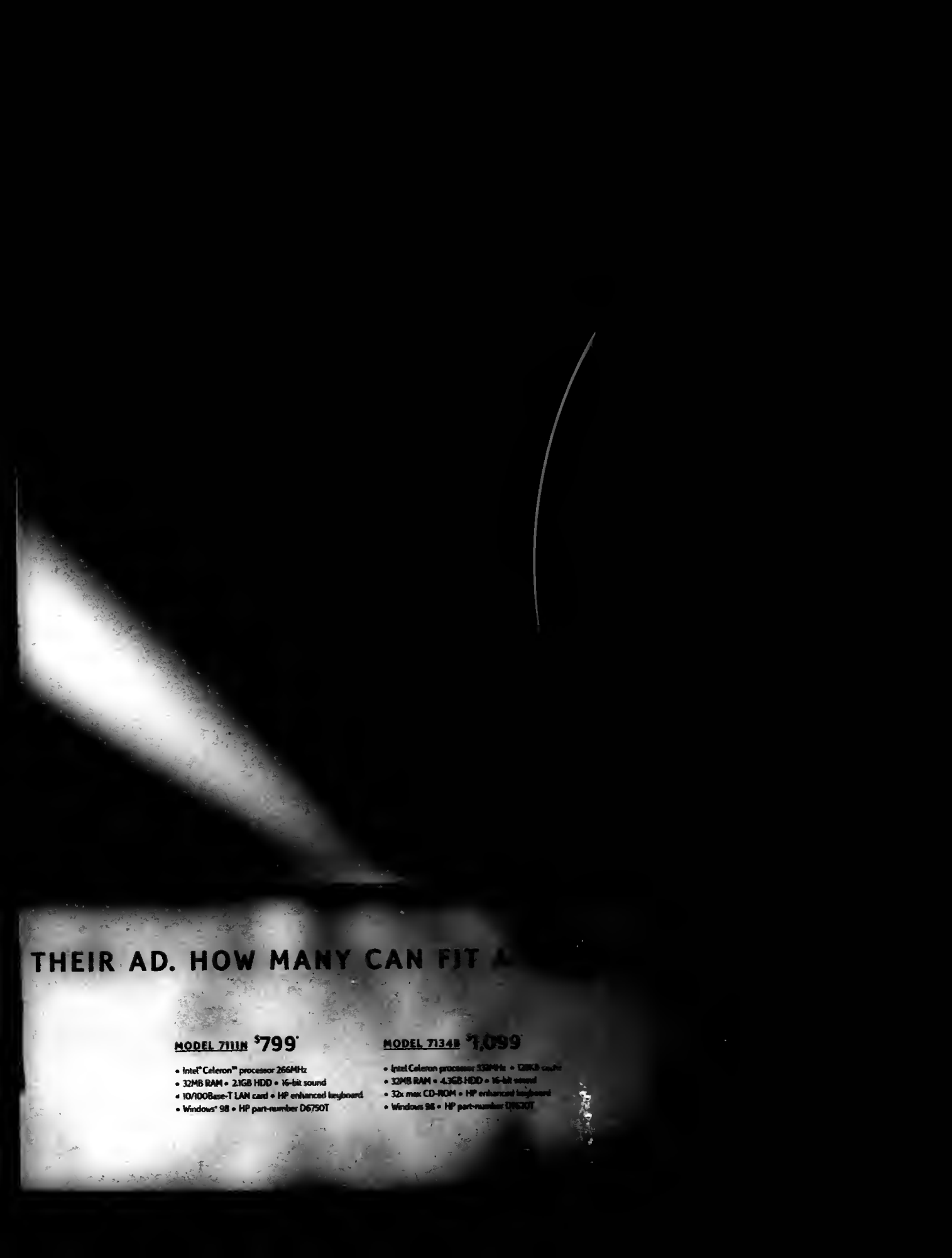
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• Windows® 98 • HP part-number D6750T
MODEL 7134B $1,099
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• 32x max CD-ROM • HP enhanced keyboard
• Windows 98 • HP part-number D7630T

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M I N I N G

Data Warehousing

Special Section: Data Mining • Decision Support • Strategies

Briefs

Decision support

Hummingbird Communications Ltd. in Toronto is shipping BI/Suite, the company's integrated, Web-enabled business intelligence software. BI/Suite lets many users access the same decision-support services and content, regardless of whether they're using desktop business intelligence applications or Web browsers. BI/Suite is comprised of BI/Broker, BI/Query and BI/Web. BI/Broker is compatible with Windows NT 4.0 (Service Pack 3). BI/Query is compatible with Windows 95 and 98 and Windows NT 3.5 and 4.0. Pricing was unavailable.

Updated OLAP tool

Cognos Inc. in Burlington, Mass., is shipping a new version of its online analytical processing (OLAP) product, Cognos PowerPlay 6.0. Enhanced reporting features in the new version include richer report formatting and the ability to add calculated and dynamic categories to the multidimensional cube that underlies OLAP reporting applications. Version 6.0 runs on Windows 95 and 98 and Windows NT 4.0. Pricing begins at $695 per user.

Statistical analysis

Sagent Technology Inc. in Palo Alto, Calif., has announced Sagent Statistical Calculator and StatView for Sagent, two statistical analysis tools that enable advanced server-based computation, as well as end-user graphical analysis and presentation of data. Sagent Statistical Calculator costs $10,000 per server. StatView for Sagent costs $5,000 for five client licenses.

Compaq data mart

Compaq Computer Corp. in Houston will sell Web-based data marts for OpenVMS (for VAX and Alpha systems) and for Windows NT (for Intel and Alpha systems) based on New York-based Information Builders Inc.'s SmartMart and WebFocus products.

ERP users face data warehouse dilemma

By Tony Baer

ENTERPRISE RESOURCE planning (ERP) projects have dominated the IT agenda at many organizations over the past few years. As these systems inch closer to production, many companies are looking to use data warehouses to gain competitive advantage from their new pools of common enterprise data.

ERP STRATEGY

The question facing information technology managers is whether to go with tools from their ERP vendor or with those from companies that are in the data warehousing field.

For example, both Monsanto Co., a life sciences company in St. Louis and Hercules Inc., a chemical manufacturer in Wilmington, Del., had to decide whether to adopt SAP AG's data warehousing strategy for their R/3 ERP systems or travel the third-party route (see chart, page 82). They chose different paths.

Frank Gillette, an analyst at Forrester Research Inc. in Cambridge, Mass., said he is skeptical that transaction-application vendors such as SAP are qualified to build data warehouses. "You don't want to have data extraction and transformation going on in the same database that you run your transactions in," he said.

Data warehouse, page 82

Reporting tool eases warehouse access

▸ *Sports simple interface and Y2K compliance*

By Lisa Kempster

IN CREATING ITS new Genesys data warehouse, Gannett Co. was of course looking to streamline its data models, increase the amount of information available to users, decrease the workload of its information technology department and reach year 2000 compliance.

But its biggest hope was to increase revenue through better marketing strategies.

"Our legacy circulation and advertising systems were outdated. . . . Our first evolution of Genesys involved combining information about our advertisers and subscribers in a universal customer pool accessible to the advertising and circulation systems," said Brett Coddington, manager of analytical application development at Gannett.

The nation's largest newspaper group, with $4.7 billion in operating revenue last year, Arlington, Va.-based Gannett has a combined daily paid circulation of more than 6.7 million readers, including about 2 million for its flagship, *USA Today*.

Gannett's old system was comprised of a pair of smaller IBM AS/400-based databases for each newspaper — one for advertising and one for circulation — that made it difficult for users to access information on their own.

It also became clear that users needed a better reporting tool. The old SQL query system wasn't fast enough and required IT departments at the news-

Reporting tool, page 82

Gannett's Brett Coddington helped build a data warehouse in-house to aid marketing and circulation efforts

COMMENTARY

Successful data migration

SHAKU ATRE

This is fifth in a series on how to build a data warehouse. The previous installment appeared in our Sept. 21 issue.

YOU'RE LIKELY to spend a lot more time on data preparation, analysis and transformation than you expect. The larger the firm, the harder the task.

The biggest challenge is finding expertise in the subject areas. It won't be enough just to identify raw data. Information technology staffers often will have to work side by side with business end users to identify what they're looking at.

As you get started, do a simple ad hoc data audit.

Ask several business users, IT staffers and upper managers to answer questions such as the following:

- Can you find the appropriate customer when needed?
- How many addresses are associated with that customer?

Data migration, page 82

Reporting tool

CONTINUED FROM PAGE 81

papers to write and run the queries.

Furthermore, with Genesys, information was structured to more easily identify people, addresses and telephone numbers. That made SQL queries difficult because information was scattered throughout multiple files using unique identifiers to join them.

"With Genesys, it became complicated for the users to get the queries they needed. If the process of gathering the information is too slow, the data becomes irrelevant because the situation has changed or it is too old to be useful," Codding ton said.

EASIER ACCESS TOOL

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Kompelien is a freelance writer in Milford, Mass.

How Alabama Gas is implementing a data warehouse. Page 43

Atre: Successful data migration

CONTINUED FROM PAGE 81

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As you go through your migration efforts, keep the following tips in mind:

- Ensure that conversion and migration practices are written by staffers who are knowledgeable about the business and experts who are knowledgeable about the new platform. The process of conversion and migration also presents the best opportunity to eliminate dead and useless data.
- Remember that the more data elements used from an enterprise's database, the more time it will take to transform the necessary data into a data warehouse database.
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Snapshot

THREE CHEERS

How successful was your data warehouse implementation?

- Very successful
- Successful
- Slightly successful
- Not successful
- Too soon to know

Base: Survey of 100 IT managers at companies that have installed data warehouses

Source: Software Information Corp., Arlington, Mass.

LOTS OF OPTIONS

Options for SAP sites include the following packages:

- SAP America's own Business Information Warehouse, which includes data mart templates for customer, vendor and direct expense analysis.
- Informatica's PowerMart, which imports non-SAP data into Business Warehouse.
- Managed reporting environments from Brio Technology, Business Objects and Information Builders with application programming interfaces for importing R/3 data.
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Data warehouse dilemma

CONTINUED FROM PAGE 81

For example, he said, SAP's Business Warehouse, which is only now entering general release, isn't yet ready for prime time. "You wouldn't want to bet your business on Version 1 of anything," Gillette said.

NO SINGLE ANSWER

That was Monsanto's thinking. "SAP does a lot of things, but we found that they couldn't yet satisfy all of our decision-support needs," said Paul Eveld, information systems manager on the R/3 project.

Monsanto's various business units across the globe already had spent millions of dollars building their own stand-alone data marts, using tools from Business Objects Inc., Cognos Inc., Pilot Software Inc., Hyperion Solutions Corp. and others.

And thanks to recent acquisitions, Monsanto also had several other ERP systems, including J.D. Edwards & Co.'s World and System Software Associates Inc.'s BPCS, to contend with. An SAP-specific solution didn't make sense.

"We decided for the time being to protect our data warehouse investments," Eveld said. That decision was far from a do-nothing strategy, however. The company took the opportunity of the enterprise systems migration to consolidate the back ends of its dozens of data marts with an Oracle Corp.-based R/3 decision-support repository containing current and historical transaction data. It will be populated by Acta Technology Inc.'s R/3 data extraction and transformation tools.

Individual business units may still keep their favorite front-end tools, but at least they will be working from common enterprise data models for topics such as products or customers.

At Hercules, the decision for an all-SAP approach was more clear-cut. Having become one of SAP's first North American R/3 customers in 1993, Hercules was well over half finished by last year and was committed to converting all its major enterprise systems to R/3. When SAP offered it the opportunity to join the Business Warehouse beta program, Hercules officials decided the risk was justified.

"It was clear to us that [Business Warehouse] was a strategic piece of SAP's go-forward strategy and that they would bring the resources to bear to bring out a viable product," said Pete Steiner, Hercules' SAP project director.

Major drivers were Hercules' desire to leverage the company's existing SAP programming skills base and the fact that, as a beta customer, it stood a good chance of influencing SAP's Business Warehouse product-development direction, he said.

As an example of Hercules' input, Steiner pointed to SAP's development of an extract program from R/3's Profit Center Analysis module, which was high on his list.

Despite its more cautious approach, even Monsanto is confident about Business Warehouse's long-term prospects.

With the company's R/3 implementation barely 20% finished, Eveld conceded that it may not yet be time to force the issue. "I don't think we're ready for [Business Warehouse] yet, but I don't think that SAP is ready either." But he added, "We'll evaluate the production version next year." □

Baer is a freelance writer in Bedford, Mass.

Health care providers announce plans to install large data warehouses. Page 43

Reporting tool

CONTINUED FROM PAGE 81

papers to write and run the queries.

Furthermore, with Genesys, information was structured to more easily identify people, addresses and telephone numbers. That made SQL queries difficult because information was scattered throughout multiple files using unique identifiers to join them.

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Managing

CEOs to IT: TEACH US

A *Computerworld*/KPMG study finds that 100 CEOs say IT is delivering value, but communication remains a sore spot

By Rochelle Garner

Aquila Energy's Harvey Padewer: "If you look at the most successful companies, the senior officers really understand IT"

CEOs certainly have their plates full. Every day they have to prime their companies for global competition, cope with changing marketplaces and craft high-stakes relationships.

Now, as if their brains weren't crammed enough, they also have to become expert at managing information technology. The times demand it.

"A CEO who's not totally knowledgeable about information systems — how to invest in them and how they help the business — just isn't competent," says Harvey Padewer, president and CEO of Aquila Energy Corp., a $4 billion energy trading company in Kansas City, Mo. "If you look at the most successful companies, the senior officers really understand IT. I think it separates the winners from the losers."

Welcome to the stinging reality of big business, where CEOs' knowledge of IT management can spell the difference between the players and the also-rans.

But just how savvy are today's business leaders about IT? To find out, *Computerworld* and KPMG conducted an in-depth survey of 100 CEOs, including Padewer, who head Fortune 1,000 companies. Its purpose was to explore CEOs' attitudes about IT spending, IT's alignment with business and their satisfaction with their companies' technical direction. The results are thought-provoking, to say the least.

Consider this: Nearly 47% of those surveyed say they are "extremely" satisfied with how well their IT organizations align with business objectives. What's more, 39% expressed extreme satisfaction with the value their companies have received from IT spending. Together, these are extraordinary sentiments, indicating a stellar harvest in both productivity gains and competitive edge.

But look at CEOs' ratings of the information they receive from their IT organizations. Although 32% said they were extremely satisfied with the information they receive on their IT investments, a stunning 68% were either completely displeased, or, at best, "somewhat satisfied" with the data they receive from their IT heads.

Something's amiss here. The contradiction? How can CEOs know whether their IT spending is truly delivering value if they don't have adequate financial information about those investments? Perhaps, say two KPMG officials, the CEOs are being glib. "Ask any corporation if its IT investments are aligned with business goals, and they will say 'yes,' " says Steve Hill, global partner in charge of world-class IT and national partner in charge of consumer and industrial markets at KPMG. "But if you look at how they invest, you will find that any alignment is, at best, sporadic."

It comes down to execution. Translating knowledge into real alignment requires effort, terrific management skills and — maybe above all — comfort with the subject of IT itself. When the boss understands how to manage technology, then issues of IT strategy, fiscal oversight and shareholder value have a chance of falling into place.

BUILT FOR COMFORT

Perhaps the first question is: What should a CEO know about technology? After all, it's ultimately the CEO's responsibility to ensure that big-ticket IT expenditures reap corporate rewards. "I don't think a CEO or CFO needs to know programming or technology's intimate details," Padewer says, "but the CEO does need to understand the process of development — how the process works, how the people work and how they produce the output products. CEOs have to know what the technology is capable of doing."

Padewer is talking about a degree of understanding that would have been unthinkable among CEOs even five years ago. It's a level, he says, that extends beyond technological literacy to encompass technological knowledge. But how comfortable are CEOs with managing IT? The survey tried to gauge that by asking: "If you or your management team could benefit from learning more about IT for business decisions, what would you most want to learn about?"

The No. 1 answer? Learning how to evaluate new systems, software and trends, as well as understanding IT lingo. This is a telling response, revealing the degree to which CEOs still grapple with their most arcane corporate asset. Why, after all, should a corporate head, or anyone directly reporting to him, know how to evaluate systems or software?

"This question took CEOs by surprise," says Andrew Boughton, KPMG's research director of U.S. consulting. "It asks them to confess that there's something to learn, and at what level."

Adds Hill: "Ten years ago, companies built systems. Today, they buy them. That process is one that business leaders probably find ambiguous. And they are thinking that if they could evaluate technology, they would be better informed."

Of course, it would help if the organizations' IT people did a better job of communicating exactly how new IT systems and software would help their companies. Apparently, the ability to communicate using the

Only 14% of CEOs surveyed say their boards of directors are involved in strategic planning for IT. Yet 37% say their boards put at least some pressure on them to take a more active role in IT management.

language of business still needs work. As proof, 56% of the respondents said they'd like to see their IT folks better articulate — in terms understood by their corporate colleagues — the business ramifications of their IT investments.

"You can lay out the business objectives you wish to achieve, but you can't always measure the results," says the CEO of a Western-based wood products company. "You just have to take the word of your IT people."

Clearly, what's needed here is a meeting of the minds — with businesspeople gaining a better understanding of technology and technical folk grasping the demands of business. The survey indicates that's happening.

"Now that the IS organization cranks out information used to manage business — instead of just automating repetitive tasks, like billing — the information business is no longer perceived as a function," says the CEO of an East Coast utility company. "Because of that, the businesspeople are right smack in the face of the IS people and the IS people are right smack in the face of the businesspeople. And they have come to understand one another better."

COMING TOGETHER

In effect, business necessity is forcing the two sides to come together. But here's the surprising part: When asked to rate, on a scale of 1 to 7, how much better the heads of their business units understand IT now compared with three years ago, 47% of the CEOs surveyed checked either a 6 or a 7. Only 29% gave the same high marks to their IT workers' increased understanding of business.

Another noteworthy change revealed by the *Computerworld*/KPMG survey concerns the corporate vision for IT. It's no longer just about saving money. In fact, 53% of all respondents described IT as absolutely vital to their business. Another 33% described IT as key to their competitive edge. Only 13% viewed IT's business contribution only in terms of reducing costs. "Years ago, IT was looked at as a staff function. Now, it's a critical component of the overall business operations," says a CEO of a Midwestern energy company. "It's just as critical as manufacturing, sales or marketing in that it can create a competitive edge or it can give you a competitive disadvantage." Such attitudes explain another important shift — in who does the spending. Specifically, the survey asked corporate heads to name who now holds responsibility for IT planning and investing, and where it should lie.

The results: Today, 27% of the surveyed companies handle this oh-so-strategic decision by executive committee. In 31% of the companies, the CIO or IT organization makes those decisions. The CEO or president calls the shots in 22% of the companies, compared to 21% who lay the responsibility on the chief financial officer or chief operating officer. By themselves, these numbers have meaning — indicating a huge shift from the model of a decade ago, when the CFO alone oversaw IT spending. But even more telling was where corporate heads thought the responsibility ought to lie: with top-level management/executive officers, according to 24%. Only 15% said such financial responsibility should rest with the CFO. The biggest surprises? Twenty-five percent said such responsibility should reside within the IT organization, while a scant 11% cited an executive, or steering, committee as the optimum decision-making body.

That's worth noting. "We've been saying for quite some time that IT planning and investing should be shifted away from the CFOs and CIOs," Hill says, "but you don't want to distribute that responsibility to department heads, either, since that becomes a political hotbed of conflicting priorities. This notion of an executive, or steering, committee is really the answer."

If the survey is any indication, KPMG's recommendations on who should be managing IT spending remain largely unheeded. But who knows better — the CEOs or the consultants? It's a question that can be debated from now until the end of the next millennium. But this much is clear: Many of today's CEOs are grappling with ways to better manage IT. Moreover, most CEOs recognize that IT can provide considerably greater benefits than mere cost savings. The bad news is that the business and technical communities still aren't speaking the same language. IT folks need to improve their ability to provide useful information in a business context. And business heads need to become more comfortable with this critical corporate asset.

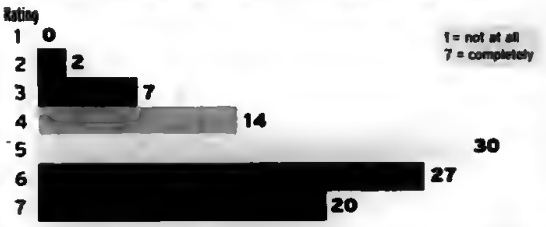
Chances are that melding will occur, given the critical importance to corporate health that IT has assumed. The only question is, when? □

Garner is a freelance writer in San Carlos, Calif.

THE VIEW FROM THE TOP

Aligning IT and business

How well is IT aligned to business objectives?
More than 75% find their IT organizations well-aligned

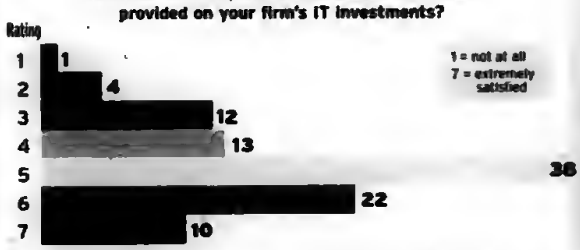


Best bang for the IT buck?

How much value do you believe your company is getting for the money you're spending on IT?

Good investment data?

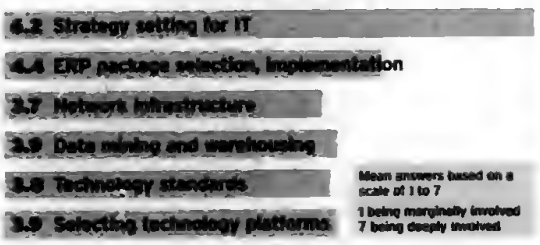
How satisfied are you with the information you're provided on your firm's IT investments?



Of the 39 CEOs who see their firms getting the highest value from their IT spending, 22 said they are somewhat satisfied with the information they are provided on their firms' IT investments; 17 said they are extremely satisfied

A big hand in strategy

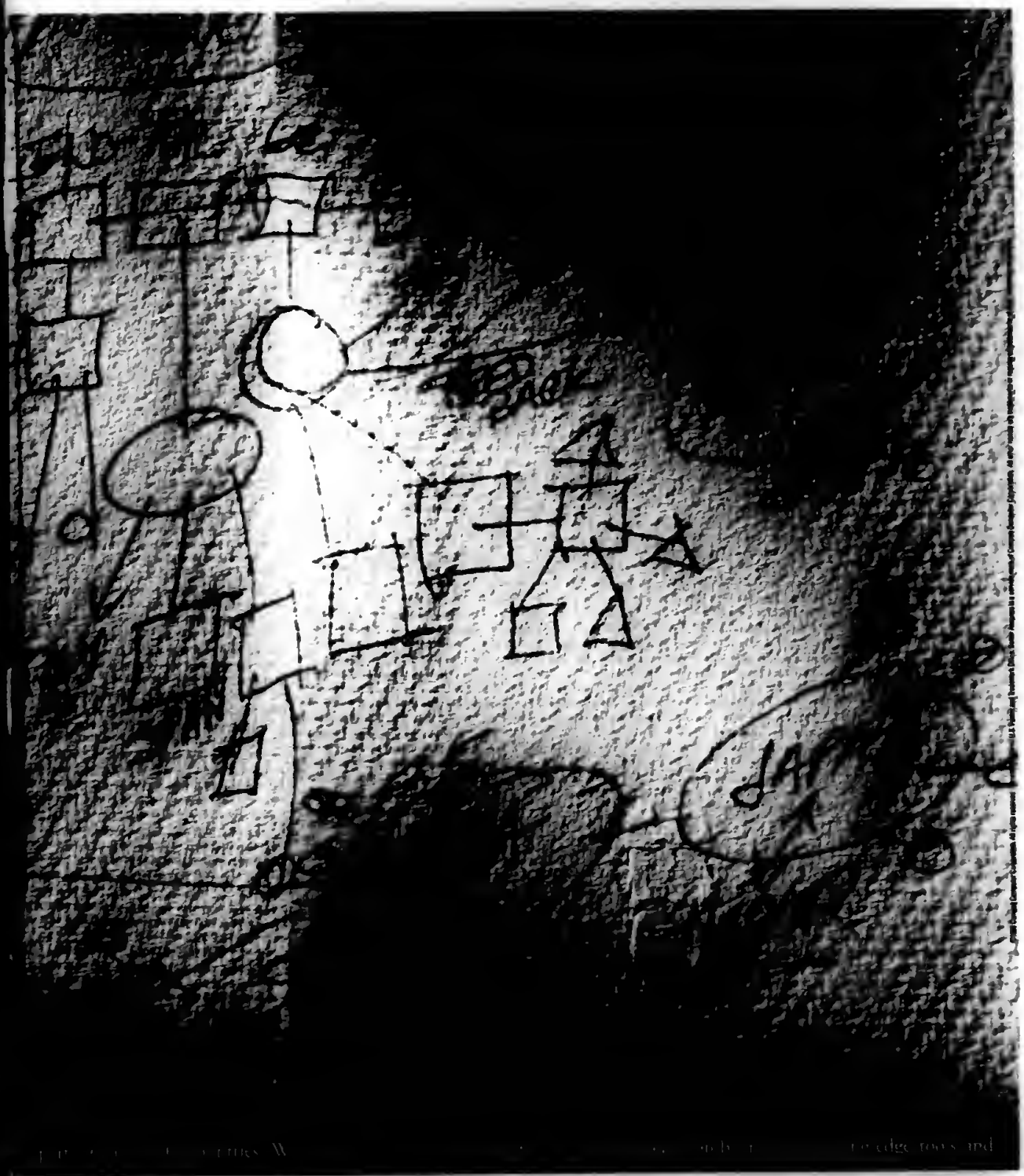
How involved should senior business executives be in the following areas of IT?



Source: *Computerworld*/KPMG survey in August of 100 CEOs at Fortune 1,000 companies

products, offering them directly or over the Web to partners, resellers and customers at great

Better answers:



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RESOURCES: FOR IT MANAGERS

BOOKSHELF

E-policy: How to Develop Computer, E-mail and Internet Guidelines to Protect Your Company and Its Assets
By Michael R. Overly
(Amacom Books, New York; 144 pages, $16.95 paperback)

Here's a bright, easy-to-read guide that can help you spell out the proper use of your company's IT systems and help protect your company from hackers and legal problems.

Overly, a California lawyer who specializes in information technology issues, points out many of the possible ramifications of employees remaining ignorant of copyright and defamation laws. The sample corporate policy clauses he includes throughout the book allow a company to decide what policies would best match its culture. Readers should be able to use the book to decide which policies will work best.

Overly stresses that it takes more than an orientation session to educate employees on proper computer use. Any policy, he writes, "should be periodically recirculated to employees and regularly revised to reflect changes in the law."

This quick read of a book is worth the time if you're even partly responsible for ensuring secure computing. But end users will also find it to be an eye-opener. — *Rick Saia*

CONFERENCES

▸ **Comdex Fall '98.** Las Vegas Convention Center, Las Vegas Hilton and Sands Expo & Convention Center. **Nov. 16-20.** The busiest information technology event of the year will take over Vegas for a week. More than 300 speakers, including Microsoft's Bill Gates, Jeff Papows of Lotus Development and Michael Dell of Dell Computer, are on the agenda.
Contact: Comdex at (781) 433-1665, or on the Web at www.comdex.com.

▸ **Oracle OpenWorld.** Moscone Center in San Francisco. **Nov. 8-12.** An opportunity for business executives, IT pros and application developers to learn about nearly every Oracle product or technology for business. Managed and operated by Oracle Corp. with the help of the International Oracle Users Group-Americas.
Contact: Oracle at (650) 506-2470, or on the Web at www.oracle.com/openworld.

▸ **Meta Group Inc.'s "An IT Renaissance: Using Millennium Work to Sculpt Business Performance."** Buena Vista Palace in Orlando, Fla. **Nov. 2-4.** How do you move your IT organization ahead into the 21st century? That's the theme of this showcase for Meta Group's executives and researchers.
Contact: Meta Group at (800) 945-6382 or (203) 973-6785, or on the Web at www.metagroup.com/pemsreg.

▸ **AMR Research's 12th Annual Executive Conference.** Marriott Copley Place in Boston. **Nov. 17-19.** AMR will present its latest findings on the enterprise resource planning market, from market strategies to how well the enterprise backbone addresses a company's needs.
Contact: (617) 574-5138. or on the Web at www.amr research.com/conferences.

JARGON JUDGE

Eight for the trash can

Well, it's time to clean out the reader mailbox and share some of your most jaded jargon, with some commentary from The Judge. Here's a list of eight terms that should be purged from your memories. Keep 'em coming!

MODEMING — It means to transfer a file by modem. Modeming is shorter, of course — but it's not a word.

REV UP — It means (according to a correspondent more knowledgeable than I) to install a software patch to upgrade to the current revision of software: "After we noticed they were behind, we revved up their data." Nontechies won't understand it. So say what you mean.

LEVEL SET — Used most often as a complicated way of saying, "Let's compare notes and see if we agree and determine where we go next," according to one reader. See advice in previous item (although I'd say that not only nontechies could be perplexed by this one).

PUSHBACK — Used as a verb, meaning "to communicate reluctance or disagreement." Making up this word doesn't change the fact that someone disagrees with you, nor does it make you sound any more intelligent. Stick to real verbs — and maybe by sounding down to earth, you can find some common ground with that person after all.

ANNE MCCRORY

OFF-LINE — In a technical context, it's the opposite of online — not logged on to the network or the Internet. But it's often used to mean "Let's discuss this more later, so we don't get too far off track of our meeting/conference call." Most people will get that drift — but an equal number might roll their eyes at yet another techie term lifted for conventional use. Isn't there enough evidence already that computers are taking over the world?

ZERO ADMINISTRATION — Used by Microsoft to describe its PC management initiative two years ago, this term went mainstream quickly. It implies that the product runs itself and never needs attention, upgrades or patches (or that all of these will occur automatically), a reader writes. There is, quite simply, no such thing. The product may perform useful tasks and require less effort to administer, but less ain't none, and you're the one who gets to tell your CEO that.

TO GROW — We all know what it means; we just have to fight the trend to use it in an unnatural, inorganic way, such as "to grow a business." Why? Because there are so many better words — *develop, enhance* and *increase*, says one reader. And because it's just plain *annoying*.

WORLD CLASS — A favorite vendor claim. "What's next, solar system, galaxy and universal class?" a reader writes.

Special thanks to readers Robert M., Janita G., Norman A. and Sam M. for providing these terms and to all who have sent along their two cents.

Does any high-tech jargon leave you steamed? Or smiling? Tell Anne McCrory, former Computerworld copy desk chief and now assistant sections editor. Her Internet address is anne_mccrory@cw.com.

ED YOURDON

WHAT COMES AFTER 1/1/00?

Watching President Clinton apologize for his behavior has been an awkward experience for many of us. But what if it were you or me in the hot seat?

IT professionals are too dull to create sex scandals — but we do have examples of "cowboy programming" to apologize for, and we may find ourselves facing our own impeachment proceedings when our CEOs finally figure out just how badly we've burned them. I think IT professionals will be just as surprised by this backlash as Bill Clinton seems to be by his predicament.

My reasoning is simple: One of the popular topics of discussion in the IT community today is: "What happens after Y2K?" We all assume that the year 2000 "problem" will come to an end on Jan. 1, 2000; indeed, only a small percentage of IT organizations have allocated any money for year 2000 after 1999.

When pressed, we'll concede that there will be a few programs we didn't get around to fixing. Yes, maybe there will be a few power failures and banking problems; yes, maybe the Federal Aviation Administration will have a few problems.

But that's all just a temporary annoyance, many professionals will tell you earnestly. In a matter of days or weeks, we'll get back to business as usual.

DUELING PREDICTIONS

What then? The predictions range from an explosion of Internet and electronic-commerce applications to a massive shift away from today's kludgy architectures toward a distributed-component approach. Some predict Cobol or Java will flourish, while others argue they will die. The crystal-ball prognostications are endless.

Meanwhile, nobody wants to talk about the "dark side" of year 2000: What if it's not over in a couple of weeks or months? What if it leads to massive corporate bankruptcies, heralding a long-term economic recession or depression? What if it leads to breakdowns in international telecommunications or a shutdown of the world's airports for six months? There are numerous plausible year 2000 scenarios that are far worse than a mere speed bump.

Let's assume that the year 2000 mess is cleaned up within the first few days, weeks or months of the new millennium, but that when it's finished, we're not allowed to return to business as usual.

What if the CEOs toss us out of our comfortable jobs, shouting at us, "Never again!" Never again will they allow cowboy programmers to create badly structured, undocumented programs, then lose the source code. Never again will they allow vast systems to be developed without a corporate data dictionary. Never again will they allow complex systems to be put into production without adequate testing. Never again will they tolerate the rampant, arrogant anarchy that has epitomized the software industry for 50 years.

I think it's possible we'll be told to freeze everything when the year 2000 crisis subsides. "Don't write another line of code," we might be told. "Forget about Java. Forget about E-commerce. Let's get back to basics and get our IT house in order before we try anything new."

We might spend the first five years after year 2000 being forced to define standards, pass certification tests and create mechanisms for independent testing, verification and auditing of all information systems. We may be told to learn database normalization, structured analysis and a host of other software engineering disciplines that we once studied, but then forgot.

LAYING DOWN THE LAW?

When we watch how Bill Gates and his colleagues squawk at the thought of someone outside Microsoft reading the source code of the Windows operating system, we're reminded that most of us prefer to do our work in secret. But we may find that society has been so badly burned by year 2000, and corporate executives have become so angered, that they simply won't tolerate such behavior anymore.

Wouldn't it be interesting if the government passed a law prohibiting the sale of any software that hasn't been independently tested to a sufficient level of thoroughness? Or a Software Safety law that prohibits the disclaimers we see on the first page of user manuals for every popular software package?

Wouldn't it be interesting if we were told to grow up and behave like responsible adults?

It hasn't happened in the 35 years I've worked in this industry, but I think it just might happen in 439 days. □

Yourdon heads the year 2000 service at Cutter Consortium in Arlington, Mass. His most recent book is Time Bomb 2000. *He can be reached at ed@yourdon.com.*

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MORE DOCTORS IN THE HOUSE?

More than ever, CIOs feel that they need information technology professionals with good "bedside manners."

More CIOs are saying they look for well-developed soft skills, such as communication abilities and business acumen, when hiring.

Such bedside manners [CW, Feb. 2] come in handy when working with end users — especially when translating technical jargon.

A study conducted this year by RHI Consulting in Menlo Park, Calif., found that 97% of CIOs find those skills either somewhat important or very important. That's up from 85% in a 1996 study.

And one in three CIOs cited "interpersonal skills" as the most important soft skill a job candidate can possess, ahead of "written or verbal communication skills" (27%) and "ability to work under pressure" (21%).

"Technology professionals are called upon to deliver ever-increasing amounts of technical information to nontechnical users and managers," says Greg Scileppi, executive director at RHI.

"Whether they're strategizing IT initiatives with senior executives or training end users . . . skilled technologists are most effective if they can communicate complex information in lay terms and in a nonthreatening manner."

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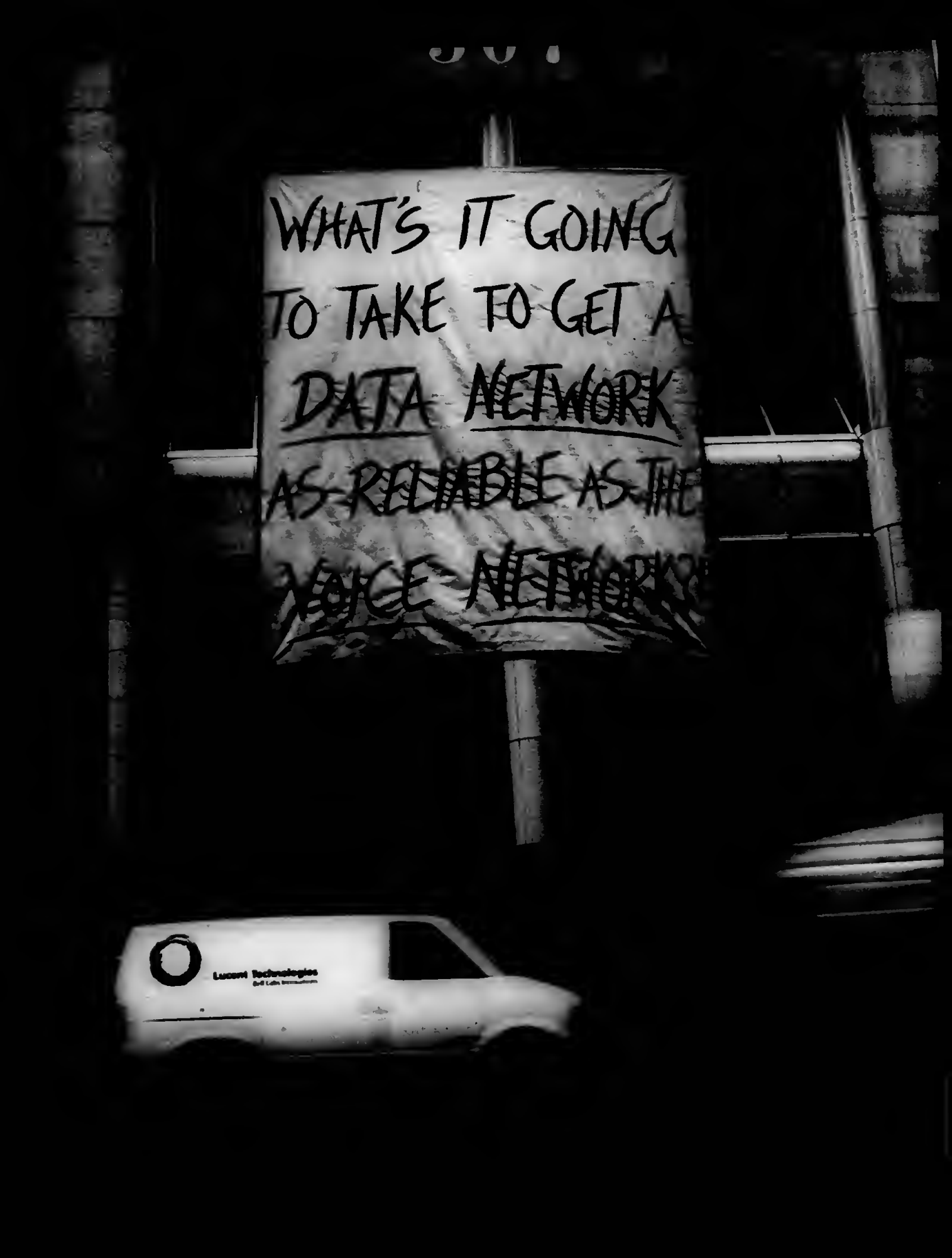
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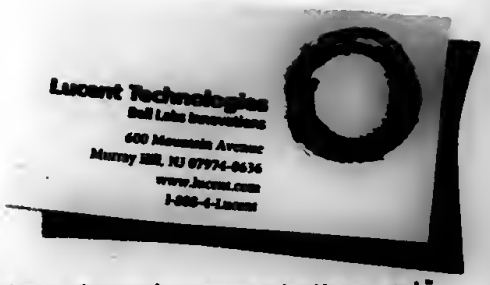

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Review Center

Enterprise systems management

THE CLASH THAT WASN'T

By Alan Radding

What was once shaping up as an epic battle of titans, the equivalent of Godzilla vs. King Kong, for control of the enterprise systems management world has evolved into a simmering cold war standoff. Market domination by either of the big guys, IBM and Computer Associates International Inc., is unlikely.

Even the conventional concept of a monolithic, comprehensive framework managing the entire corporate systems environment, from the desktop to the mainframe and everything in between, is now being called into question. Instead, the new battle cry is for multivendor integration, application management and, newest yet, Web-based enterprise management.

IBM's Tivoli division and CA's Unicenter haven't dominated the enterprise systems management market as was predicted two years ago. Those same predictions relegated the other management product vendors — the specialized or point solution vendors — to eking out a subsistence existence as captive satellites of one of the dominant players. Although CA and IBM are still on top in terms of worldwide market share — 25.3% and 18.3%, respectively, in 1997, according to Framingham, Mass.-based market research firm International Data Corp. (IDC), a sister company to *Computerworld* — a host of vendors with specialized management offerings that can integrate with one or both of the giants or one another is flourishing. That's especially true in the Unix and Windows NT environments.

Rather than consolidating into two camps, the network/systems management world is being driven by new trends that encourage diversity.

TREND: MULTIVENDOR INTEGRATION

"It was always simpler to see enterprise management as a two-horse race, but we never bought in to it," says Sue Aldrich, a senior consultant at Patricia Seybold Group in Boston. The problem is that enterprise systems and network environments are too dynamic and too varied for a single, comprehensive package to meet all of an organization's needs. "Organizations will never have only one management solution, even with the best integrated solutions," Aldrich says.

"There has been an evolution. You can't think about systems and network management in terms of two camps anymore," says Steven Foote, senior vice president for research at Hurwitz Group Inc. in Framingham, Mass. In a bipolar systems management world, users had Tivoli, an enterprise framework into which tools from many vendors would plug, and CA Unicenter, a monolithic product with all functionality tightly integrated. Today, however, Foote says he sees both vendors evolving toward a middle position. Tivoli is including more of its own products, often tools from IBM; while CA, since April, has been unbundling Unicenter and opening it up to more third-party products.

At this rate, the middle ground may get quite crowded as users mix and match various point products and integrate them with enterprise management frameworks, as both Tivoli and CA now refer to their wares. Currently, companies such as Hewlett-Packard Co., BMC Software Inc., Platinum Technology Inc., Compuware Corp. and others that have collections of point solutions fill that middle space.

The shift to the middle ground, which has been building momentum since the first of the year, occurred in response to the growing realization that single-vendor, comprehensive systems/network management solutions don't work. A widely published report by the research firm Gartner Group Inc. in Stamford, Conn., around that time suggested that 70% of enterprise system management implementations have been unsuccessful. "Depending on your definition of success, the success rate could be closer to zero percent," Foote adds.

Tropicana Products Inc. in Bradenton, Fla., is one company that has opted for the middle ground — a combination of the Tivoli enterprise management framework and a variety of tools from Platinum Technology. Tropicana has been refining its mix-and-match approach to systems management for almost three years.

The critical function for Tropicana is automatic job scheduling. The company started with Platinum's job scheduler, Autosys. Tivoli, however, comes with its own job scheduler. Tropicana subsequently purchased other management tools that provide scheduling for their specific functions. "We didn't really want to fool around with lots of different schedulers," says Eric Eriksen, Tropicana's director of MIS.

The clash, page 96

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THE CLASH THAT WASN'T

CONTINUED FROM PAGE 93

Instead, Tropicana set up a three-tier scheduling system. Autosys is the master scheduler, managing the individual tools. Everything reports back to Tivoli through Tivoli Plus integration modules. Using the Tivoli console, operators can view alerts, policies, messages and rules. When problems occur, the operator drills down through the Tivoli console into the native tool.

Tropicana has added several management tools. Some, but not all of them, are integrated with Tivoli through Tivoli Plus modules. "It is not necessary to integrate things we don't use very often," Eriksen says.

FAST DEPLOYMENT, FAST ROI

Rather than tempt failure, information technology managers have revised their enterprise systems management requirements. "Deployment is a critical issue today. Organizations want to get something in and up running fast," says Paul Mason, an analyst at IDC.

Adding pressure for fast deployment, Mason says, is the lack of patience for big enterprise systems/network management investments on the part of top management. Corporate executives want to see return on investment (ROI) sooner rather than later. Vendors such as Tivoli and CA are responding with quick deployment programs.

Fast deployment and quick payback were what drove GMAC Residential Funding Corp. in Bloomington, Minn., to turn to several Tivoli modules, including the console, software distribution, remote control and inventory systems. The company also uses Compuware's EcoTools, HP's OpenView and Compaq Computer Corp.'s own server management tools, reports Theodore Wendell, director of information technology at Residential Funding.

To avoid the kinds of disastrous Tivoli implementations reported by some other users — "We had seen the reports of 70% failure rates," Wendell notes — Residential Funding implemented the system one piece at a time, looking to receive payback from each piece before moving to the next. The company determined that software distribution would offer the biggest payback, so it implemented that module first. That decision was made partly because there would be no need to physically visit each desktop. "We now save $25,000 with each software distribution," Wendell says.

After software distribution, the company moved on to database management, server management and the rest, one step at a time. "This stuff is very costly. You've got to hit visible things. Management wants to see the return on investment," Wendell says.

Wendell says he felt that the company needed to piece together multiple tools to get needed functionality and flexibility. "I would love to have just one tool that did it all, but we need the best tool for each situation," Wendell says. Tivoli is the manager of managers. EcoTools manages the Oracle database and sends alerts to Tivoli. OpenView manages the network devices and also feeds the information to Tivoli.

Residential Funding opted for Tivoli because it seemed most accommodating of the mix-and-match approach. "We just didn't think that a single vendor could do it all," Wendell explains. "Tivoli lets me add other products."

The integration was achieved through the use of Tivoli Plus modules for each vendor's product. The integration is rudimentary, allowing an operator to see all the events and elements on a single console. However, when the operator actually needs to take an action, he must dive down into the individual tool, which has its own user interface, look and feel.

Contrary to popular belief, a single monolithic management tool such as CA Unicenter can be deployed fast. In fact, when it comes to quick deployment, Hurley Consulting Associates Ltd. in Chatham, N.J., a consulting firm for the pharmaceutical industry, may hold the record. A small company with just 130 desktop systems, Hurley got its CA Unicenter system — which is notorious for seemingly endless costly implementations — up and running in just 10 days. Granted, not all the functionality was connected, but at least one key process was under management.

The quick implementation wasn't a happy accident. Well aware of the horror stories about multiyear implementations, Hurley contracted with CA to handle its Unicenter implementation with a stipulation that the implementation be completed, including knowledge transfer, in 10 days. A team of CA people descended on Hurley and had a minimum configuration running within the allotted time. The team also trained Hurley's staff as part of the process. "I was able to set up the rest," reports Richard Grey, Hurley's network administrator.

The company opted for CA Unicenter for one-stop management convenience. Hurley bought the entire Unicenter package: the console; agents for Unix, Windows NT, Exchange and SQL Server; backup; software delivery; asset management — everything.

"We wanted one piece that did it all, end to end," Grey says. With Unicenter, Hurley manages 17 to 20 servers and NT server clusters and handles software distribution to workstations. Hurley previously managed systems and networks manually.

TREND: APPLICATION MANAGEMENT

All vendors are starting to recognize that companies aren't interested in managing servers or databases. "They want to manage the application," Mason says. Users don't care if a router is wildly discarding packets or a server's memory buffers are overflowing. They want to access their critical applications, whether they are homegrown or from SAP AG or PeopleSoft Inc.

Application management was certainly on David Bristow's mind when his group began piecing together a best-of-breed management package in September 1997. Bristow, manager of enterprise management services at LSI Logic Corp. in Milpitas, Calif., was under pressure to get an enterprise management system in place by January, when the company planned to begin deployment of SAP R/3.

Working with consultants from HP, the company implemented a multilayered, best-of-breed approach using HP's OpenView for polling and integrated viewing, distributed Simple Network Management Protocol agents, an event integration and correlation engine and BMC Patrol to manage R/3 itself. The implementation was designed to meet a single objective: "We wanted to know if something would affect the delivery of R/3," Bristow reports. Anything else was superfluous.

LSI considered Tivoli and CA but decided against the large framework. "It could take a year to implement CA or Tivoli," Bristow says. "With the best-of-breed approach, we thought we could respond much faster."

What LSI got wasn't a comprehensive system and enterprisewide network management, but end-to-end management of R/3, which is all it really wanted. "We can see the status of R/3. We see all the devices that contribute to R/3 and correlate all the faults," Bristow explains. To do that quickly and effectively, Bristow's group took thousands of possible management parameters and events in the areas of network, system, database, application and security and filtered them down to the few dozen that were really important. The resulting best-of-breed management system was implemented in three months, with assistance from the vendors.

TREND: WEB-BASED MANAGEMENT

The Web threatens drastic changes to the system/network management status quo. The threat comes in the form of Web-based Enterprise Management (WBEM) from Microsoft Corp. and the Desktop Management task force. WBEM uses the common information model developed by Microsoft to provide a single data description mechanism for all enterprise data sources.

"We're watching WBEM very closely, and we're keeping in contact with our vendors," Wendell reports. However, he says he has noticed some reticence on the part of the vendors. "They all say they are waiting for standards. They don't want to be the first, and they don't want to be the last," he says.

While the established management tool vendors wait, the new technology will open up opportunities for a new wave of entrepreneurs, Aldrich suggests. A year from now, the industry may yet again be headed toward two rival management camps, WBEM and non-WBEM. □

Radding is a technology writer who works on a freelance basis for a variety of leading research firms and publications on topic such as systems management.

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IBM.

THE USERS SPEAK: UNICENTER TNG

By Kevin Burden

WHEN COMPUTER ASSOCIATES INTERNATIONAL INC. delivered Unicenter TNG in July 1997, it departed from its in-one-box and from-one-vendor credos. But it gave its users what they say they wanted: a flexible management platform where users can integrate the tools they want, when they need them.

At the base of TNG is a framework that contains a subset of the full TNG suite: a user interface, an object repository, event management, scheduling, data collection and a virus detection module. Alone, it isn't intended as a substitute for a comprehensive management suite, but it can be a foundation for one. Users can build such a suite by integrating CA and third-party management tools into the framework.

Despite TNG's openness to multivendor support, users say they are still drawn to Unicenter primarily because it's a complete product. "The last thing we wanted was to piece together our [enterprise systems management system] from a bunch of different vendors," says Peter McFarland, technical director at The Good Guys Inc., a 78-store retail audio/video chain in Brisbane, Calif.

McFarland says The Good Guys originally chose Unicenter several years ago to manage its IBM S/390 mainframe, IBM RS/6000s and TCP/IP infrastructure. Some of its reasons for buying Unicenter still apply today. "Unicenter is the headliner of CA's product line and gets the majority of its attention," McFarland says. Adding TNG for its drill-down capabilities and event notification was a natural progression for The Good Guys, he says.

McFarland was one of three Unicenter users that we invited to discuss the management software.

INTEGRATION

If users are to proactively manage their systems, the tools in the management platform need to know what the others are doing. For that to happen, there are dozens of integration points to address, which is the basis of the TNG framework. It provides a foundation of common services that all the management products require.

Users say they like the framework because it's easily transformed into a management suite by adding tools. Products can be loosely integrated with Simple Network Management Protocol (SNMP) or tightly integrated if they have been written with CA's Software Development Kit (SDK). Baltimore Gas & Electric plans to integrate products from Platinum Technology Inc., developed with CA's SDK, into TNG for monitoring its Oracle database environment. "First, because we are already using Platinum, and second because it integrates as well as CA's Oracle agent," says Vaughn Bradley, project manager at the Baltimore utility.

McFarland says he hopes to use Adstar Distributed Storage Manager (ADSM), IBM's backup/restore and archiving tool, with Unicenter TNG because "it's more robust and like a true management tool rather than just a utility." But because ADSM supports Tivoli better than Unicenter, McFarland says he plans to integrate it only with TNG through SNMP. That's not ideal, he says, because ADSM won't have the same look and feel as other Unicenter modules, and it won't be centrally controlled.

SCALABILITY

Users say Unicenter TNG hasn't given them any reason to worry about scalability. The Good Guys continues to add up to a dozen new stores per year, and McFarland says Unicenter hasn't tripped yet. Bradley is monitoring 30 Unix and 50 Windows NT servers across six campuses and remote sites for Baltimore Gas and says he expects to add more than 100 Novell Inc. NetWare servers without problems. However, CA's NetWare agent isn't yet on par with its Unix and NT agents, Bradley says.

Scalability is even less of a concern with TNG's two- and three-dimensional visualization interfaces, users say. That was "a major addition to this version of Unicenter," says Erv Barnes, CIO at Exide Electronics in Raleigh, N.C. The interfaces give administrators the ability to manage their distributed resources from any Java-enabled Web browser on the network. Exide currently runs one Unicenter site for its U.S. operations and a second for its European sites. Barnes says he sees the new manage-anywhere interfaces as putting him a bit closer to tying the two operations together.

UNICENTER'S PROGRESS

Users praised CA for the way it's evolving Unicenter, particularly its installation procedures. One of the chief reasons large enterprise management implementation projects fail, according to users, is their frequently overwhelming magnitude. TNG's framework approach goes a long way toward making size and complexity a nonissue, users say. Because individual tools are bought and activated when needed, user ambitions can be kept in check.

Users also are encouraged by CA's efforts to steadily improve relations with its clients and partners. In fact, every user interviewed was at least evaluating a third-party product developed with CA's SDK. And users are encouraged by CA's long-term plans to evolve TNG into a more predictive and active management platform. TNG already uses some neural networking agents, which it calls Neugents. Although none of the users has made that function a priority, they say they're intrigued by the direction.

Managers wish for improvements in Unicenter in areas such as making the management modules more robust and feature-rich and making TNG easier to customize. □

NOTES FROM A LAB

SPEX, an information technology research firm in Reston, Va., conducted hands-on testing of CA Unicenter TNG and Tivoli TME 10 as part of its full report on systems administration products. Following are capsules from its report:

UNICENTER TNG

We particularly appreciated Unicenter TNG's architecture, whose framework and applications can be easily distributed across a network. . . . Each managed component is represented as its own object in the object database and can act differently depending on who is viewing it. For example, an object can send an alert to the security operator in the event of an intrusion and do nothing for the operator who performs backups.

STRENGTHS: Unicenter TNG's strengths include its capability for managing workgroup workstations and servers including software licenses. . . . TNG will prohibit software access when the number of licenses is exceeded.

A virus detector in the backup and restore component is another positive feature, although it is most appropriate for medium-sized companies . . . it covers Unix, Windows 95, NT, NetWare and OS/2 environments.

Another strength is its Security Management module, which offers powerful protection by dynamically controlling access through the logical resources concept and different security activation modes (dormant, warning, failed, etc.). Unfortunately, it is not

THE USERS SPEAK: IBM'S TIVOLI

By Kevin Burden

USERS WHO HAVE CHOSEN IBM's Tivoli TME 10 for enterprise management typically point to its framework architecture, its ability to integrate third-party tools, support for IBM S/390 mainframes and the professional services considered so critical to a successful implementation. The one thing they don't point to is ease of deployment, but they say they hope that area may see some improvement in the near future.

A Gartner Group Inc. report earlier this year stating that 70% of enterprisewide management projects fail sparked a buzz in the industry over the difficulty of deploying such environments. Tivoli's next release of TME promises to install much easier.

Version 3.6 of TME 10, which Tivoli announced last month and renamed Tivoli Enterprise, is a multitiered application suite that intends to fundamentally improve how the Tivoli framework interacts with its managed agents. In turn, the new version should be far more scalable than previous versions, and deploying 5,000 managed systems shouldn't be any more onerous than deploying 50, according to Tivoli users.

This now-shipping release shows just how well Tivoli understands enterprise management and what its users want, according to Francisco Esteve, program manager at Nestle USA in Glendale, Calif., and one of three Tivoli users we asked to discuss TME. Tivoli seems to have realized that there is no sense in adding bleeding-edge technology if users are having trouble getting the basics up and running, he says. "[Nestle] has 500 factories worldwide, so installing any companywide software is a major undertaking. However, Tivoli Enterprise has been very manageable so far," Esteve says. Nestle began piloting Version 3.6 ahead of its release date.

Tivoli's new approach puts lightweight agents on each managed system, now called Endpoints, and those agents download management tasks on demand from higher-tiered Gateways. The top tier is the Endpoint Manager, which controls the distribution of tasks to the Gateways. In the current approach, each managed node was loaded with a full set of management agents, and the management applications resided on the server. With the download on-demand style of the new architecture, most of the client software that users had to manage in the past is eliminated.

SCALABILITY

Aside from a simpler installation, Version 3.6 also dramatically improves scalability. So much so that a company the size of Nestle doesn't have to give scalability a second thought, according to Esteve. "We will go from 300 servers attached to one [TME Server] to having thousands of servers connected. It's a major step forward for us."

The new structure promises to support 10,000 Endpoints and 200 Gateways per Endpoint Manager. The TME 10 architecture could maintain only about 300 Endpoints per server. "We are ecstatic about the scalability possibilities," says Kevin Winters, manager of network services at Western Resources Inc., a utilities company in Topeka, Kan. Western Resources has 2,000 clients on TME 10 and currently is merging with another utilities company that will add another 1,500 clients. "TME 10 could still easily support this extra load, but the new version will make adding them much simpler," Winters says.

INTEGRATION

Tivoli Enterprise maintains the framework architecture that gives TME 10 its ability to integrate tools as needed. In fact, users most often pointed to that feature as the reason they initially jumped into Tivoli's camp. "[Computer Associates International Inc.'s] Unicenter was a complete and closed suite, and we didn't want to make that kind of commitment," Winters says. Since then, Unicenter has adopted the framework model, which has further heated up the competition for installations as well as third-party support.

The beauty of Tivoli's framework is that you buy only what you need, as you need. Cost is the initial advantage, although a substantial discount comes into play when the complete suite is bought. But biting off only what can be handled is the advantage that helps users succeed.

Winters is using only three modules: software distribution, inventory and remote control. "Those are the ones that we can most easily quantify our return on investment. Especially distribution — you can put some hard dollar figures on what you can save with it," Winters says. Nestle bought in to the framework because it wanted to leverage products and skills it already had. "We wanted to invest only where necessary," Esteve says.

Users did knock Tivoli for its poor integration of Netview, Tivoli's network management console. For example, inventory data collected by TME doesn't show up on the Netview screen.

But though Tivoli delivers a lot of functionality straight out of the box, its potential can't be reached without a lot of customization, according to Phil Welms, information technology manager at U.S. Foodservice in Columbia, Md. That's why Tivoli incorporates professional services as a fundamental component of its management offering. The custom administrative scripts let users customize the tools to their own administrative policies. But once you've integrated them, "you're committed to this product because it means you've invested in [Prolog or Perl programming skills]," Welms says. □

currently possible to define a user's rights in a centralized manner and propagate them to all systems concerned.

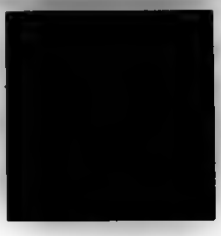
WEAKNESS: CA used SNMP for the dialog between the intermediate administration servers, the Distributed State Machines (DSMs), and the monitoring agents, and there are limitations to using this protocol.

TME 10

TME 10 and its satellite modules form a very complete set of software for monitoring and managing systems. . . . Among its strongest features is the general design of the platform and its use of object technology.

STRENGTHS: We appreciated the functional aspects of its security management with its additional module for testing for Internet security loopholes. We also like its PC management capabilities with its services for managing inventory, remote control and software distribution. . . . Its ADSM backup and recovery product is one of the most attractive on the market, with support for Unix, Windows NT, NetWare, OS/2, MVS, OS/400 and VMS.

WEAKNESS: There is little integration between TME 10 and TME 10 NetView. They don't cooperate in defining administrator profiles and access rights nor in automatic discovery. NetView uses SNMP for discovery, TME 10 uses its own agent. . . . The two products don't share a common database and each represents data differently, therefore they don't manage the same unique objects. □



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In Depth

FROM 'PROS' TO 'CONS'

We catch up with some notorious computer criminals — who got caught

BY KIM S. NASH

Hackers you know about. They violate computer systems, sometimes in fun and sometimes intending harm.

And then there are people who go to jail for using nasty computer tricks to steal money from companies or mess with information systems.

But what then? What happens to these guys — and they are all men — who serve prison time for computer crimes?

Interviews with a handful of convicts show they appear to have a list of regrets, ranging from remorse about doing their crimes to hating the fact that they got caught.

Some still get a kick out of their crimes, and others want to do penance and, as one inmate puts it, "get back on track" to a lawful existence.

FEDERAL INMATE NO. 40872-054

Vladimir Levin doesn't want to talk about his 1995 conviction. Levin, now 31, pleaded guilty to hacking into Citibank computers and using other people's passwords to transfer nearly $4 million to accounts in various countries.

England extradited him to the U.S. in 1995 after he was arrested at Heathrow Airport in London.

After serving a three-year term in a federal prison, he has lived since April in a federal detention center in Oakdale, La.

In the minimum-security facility, Levin complains, the library is thin and the bureaucracy is thick. "I basically don't see the light at end of tunnel," says Levin, whose heavily accented English betrays his roots in St. Petersburg, Russia.

FEDERAL INMATE NO. 61153-080

Christopher Lamprecht is three years into a five-year term at the low-security Federal Correctional Institution in Bastrop, Texas. He starts his day about 7 a.m.

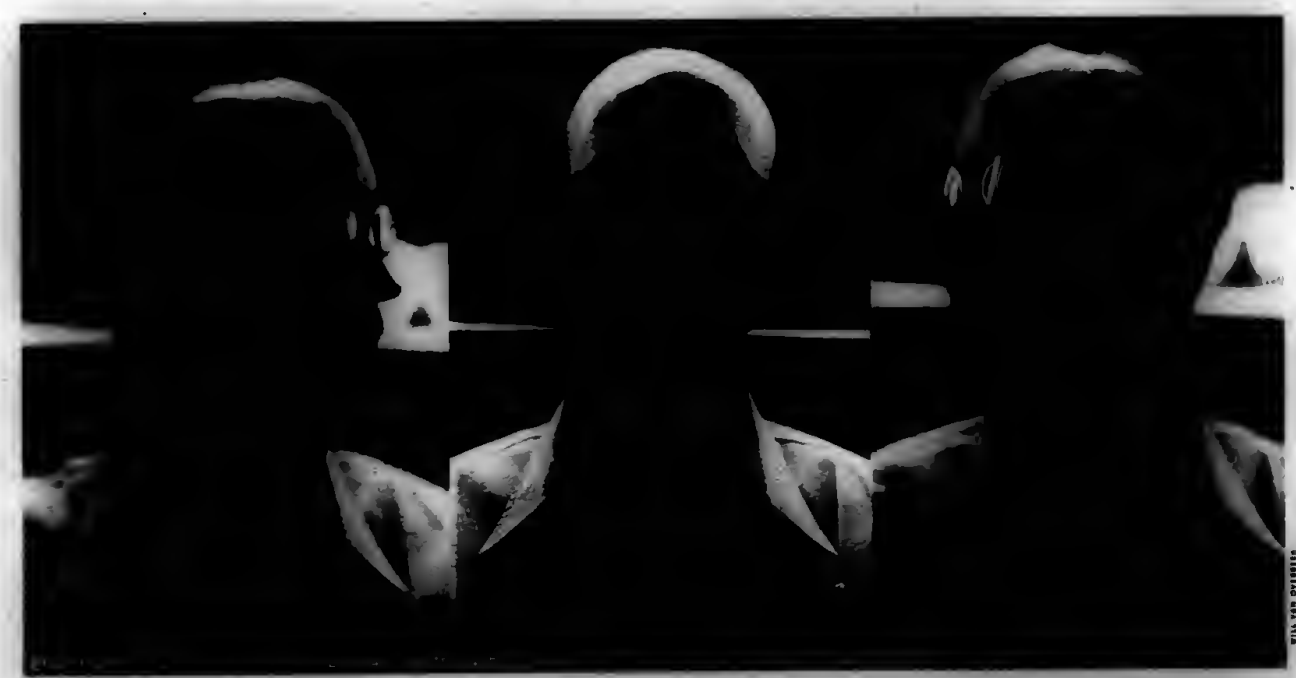
After eating breakfast with 1,100 other inmates, the 26-year-old walks across the compound to a job sweeping, washing windows and doing other cleaning chores. Lamprecht makes $9 per month, a bit of a pay cut from the $2,000 (give or take) he got for each telecommunications board he stole and sold.

He works until 3:30 p.m., then goes to headcount. Dinner is 4:30 to 5 p.m., after which Lamprecht usually goes to the prison library to read or to use the typewriters. At 9 p.m., inmates must retreat to their housing units, each of which has six TV rooms.

"At 11:30, you're locked in all night until 6:30 a.m. That's your basic day," Lamprecht explains during a noisy telephone interview from jail.

Lamprecht wasn't convicted of a computer crime; he pleaded guilty to theft and money laundering related to the telecommunications gear scheme. But he contends he got a tougher sentence because details of his hacker

Pros to cons, page 102



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[illegible] expected to report [illegible] Judge [illegible] a federal judge in [illegible] protected for five years.

[illegible] who is accused of [illegible] Minor Threat [illegible] to be used to secretly invade corporate and government computers. But he says it has nothing to do with stealing records. In federal court, he says, [illegible] for one thing, but they sentence you [illegible].

Lamprecht is scheduled to go to court next year, but the judge presiding over him banned him from the Internet and stipulated that he can't hold a job that requires [illegible] a computer.

Lucky

What kind of job can I get without a computer? wonders the 20-year-old computer science major at the University of Texas in Austin. He didn't graduate but hopes to resume his studies when he is released. Lamprecht is appealing the Internet ban, arguing that it violates his First Amendment rights. A judgment is expected in a few months.

Lamprecht took incarceration hard. Bitter when he was first locked up in his cell, he grew worse.

He told me, 'I'm not gonna come out. I can't do it,' says his mother, Michele Wood. 'When you're 22, five years is one-quarter of your life.'

Soon after, he tried to kill himself by swallowing 99 sleeping pills, recalls Wood, who is a computer trainer at a large insurance company in Dallas.

I was hysterical," she says, recalling a call from her son who he had taken the pills. My coworker kept him on the line. I got on the other line and called the prison and said, 'Get to him.'

After having his stomach pumped, Lamprecht's attitude changed, Wood says. He took responsibility for breaking the law and started making plans for his release.

On visiting days, Wood brings him printouts of E-mail he receives at his Web site (some pornographic, most supportive), which is maintained by a friend on the outside. A plea on the site recently snared Lamprecht a new lawyer — one who believes in his First Amendment position and will take his case pro bono.

What will he be like when he comes out? Wood wonders of her son. "How's he going to fit in? He's never seen Windows 95.

HIRED HANDS

Most hackers you hear about are teen-agers or in their 20s, says John Klein, president of Rent-A-Hacker, a security troubleshooting firm in Newport News, Va.

Klein hears from at least one job-seeking computer cowboy every day. But he rejects most as immature or in it for the glory. His 9-year-old company has 73 [illegible] working for jobs. And he doesn't take contracts.

A lot of people — including lots of young hackers — think that hackers who have gotten arrested or who dealt with the Secret Service are good. I've found that to be untrue," he says. "It's the ones you never hear about. Those are the hackers you need to be afraid of."

FEDERAL INMATE NO. 13112-064

Brian Martin admits that it was in part a search for fame that drew him to Oklahoma City after the 1995 bombing of the federal building there.

Martin, whose online aliases included "Terrible Entity" and "Iceman," snooped around the U.S. Department of Defense Web site for logos and other official-looking material to create fake identification cards and purchase orders for himself and a buddy. Dressed in camouflage fatigues, they flashed the bogus IDs and used a laptop to fax purchase orders to requisition $20,000 worth of two-way radios, computers, hotel rooms and meals.

Martin also finagled the use of a helicopter and pilot to fly over the Alfred P. Murrah building — airspace supposedly tightly restricted by the FBI, U.S. Department of State, U.S. Army and other government groups investigating the bombing. Martin later sold the video he shot from the sky to a French TV program.

Convicted of wire fraud, interstate transport of stolen goods and impersonating a federal officer, among other offenses, Martin claims he wasn't looking to take advantage of the high emotion after the bombing tragedy. Tony Lacy, his court-appointed lawyer, concurs. "He doesn't see it that way," says Lacy, who is at the Office of the Federal Public Defender in Oklahoma City. He saw it as 'wouldn't this be cool.'"

Martin, now 25, says of his motivation: "I wondered if these guys are supposed to be the best at security and I can get past them, then what am I?"

A rapid-fire conversationalist, Martin is eager to share details of his sprees of dumb, crazy stuff, as he calls his criminal exploits. At 18, he pleaded guilty to credit card fraud. At 19, he pleaded guilty to impersonating a police officer. And then there was the time in Colorado where he got into computers at Drury Inns Inc. to book himself a free room and at a limousine company and a flower shop to order treats for his girlfriend and himself.

Like Lamprecht, Martin is in the Bastrop facility, 30 miles east of Austin. Having spent time in Texas state prison, Martin says he prefers the federal facility where he is now. "State scared me senseless. I was in a unit where they had 26 killings in one month," he says. "I'm 135 pounds. You don't want to be me when you go to prison."

The Oklahoma City incident came back to bite Martin and his partner hard, Lacy says. "Army Criminal Investigations Division, intelligence, national security — when they did find out that it was a couple of guys playing a prank because it would be cool, they were pissed," he says, marveling at Martin's penchant, even now in jail, for talking up his past.

"If anything, prison will make him smarter," Lacy speculates.

Martin's release is scheduled for December of next year. "I'm planning on going to work for some of these places that do firewalls," he says. "Like my dad does."□

Nash is Computerworld's senior editor, investigative reports. Her Internet address is kim_nash@cw.com

Sometimes, crime pays

Whatever happened to infamous hackers Kevin Mitnick, Kevin Poulsen and Robert Morris?

Kevin Mitnick

Mitnick, also known as "Condor," is still in jail — at the Metropolitan Detention Center in Los Angeles. Since 1995, he has awaited trial on more than two dozen counts of alleged fraud and theft involving computers.

Supporters continue to push for Mitnick's release. You can get your own FREE KEVIN bumper sticker at *www.kevinmitnick.com*. In September, hackers tampered with *The New York Times* Web site, which they plastered with pro-Mitnick slogans [CW, Sept. 21]. The attack was seen as an act of aggression toward Times reporter John Markoff, who co-wrote a book about Mitnick and continues to report on the case.

Poulsen, also known as "Dark Dante," was in prison for five years. He was arrested in 1990 for money laundering and wire fraud that involved, among other things, rigging phone calls to a radio station in order to win prizes.

Poulsen now writes a computer crime column for ZDTV.com. His personal Web site (*www.catalog.com/kevinp*) includes selected documents about his case. Because the terms of Poulsen's probation bar him from being on the Internet until next year, he apparently has others post his writings on the Internet.

And what about Morris, who got three years' probation and a $10,000 fine in 1990 for setting loose an Internet "worm" that crashed thousands of Unix-based computers?

Well, he's now a millionaire.

Morris won a hand of Internet Start-up Poker in June, when a company he co-founded — Viaweb Inc. in Cambridge, Mass. — was bought by Yahoo Inc. for a cool $49 million. — Kim S. Nash

CONTINUED FROM PAGE 101

past were included in a presentence report that heavily influenced the judge. In May 1995, a federal judge in Austin ordered Lamprecht to serve five years.

Lamprecht, who is known online as "Minor Threat," doesn't deny that he used to secretly invade corporate and government computers. But he says it has nothing to do with stealing boards. "In federal court," he says, "you plead guilty for one thing, but they sentence you for everything else."

Lamprecht is scheduled to go free next year, but the judge who sentenced him banned him from the Internet and stipulated that he can't hold a job that requires him to use a computer.

Ever.

"What kind of job can I get without a computer?" wonders the onetime computer science major at the University of Texas in Austin. He didn't graduate, but hopes to resume his studies when he's released. Lamprecht is appealing the Internet ban, arguing that it violates his First Amendment rights. A judgment is expected in a few months.

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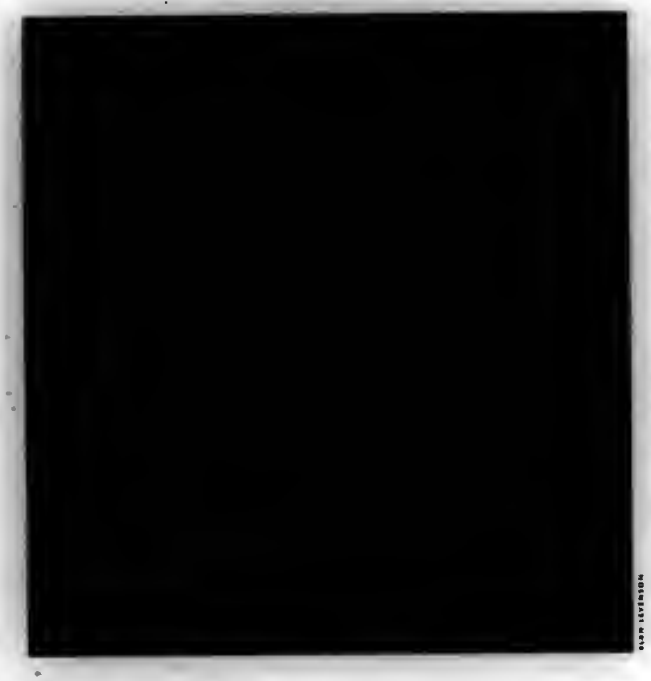
THE STUDENT POPULATION BOOM

The declining IT enrollments of the 1980s and early 1990s have reversed themselves — with a vengeance

BY BRONWYN FRYER



ENROLLMENTS AND FACULTIES

Exploding IT enrollments are catching many colleges off guard

Mike Clancy, a senior lecturer in the computer science department at the University of California at Berkeley, is facing a serious information technology skills shortage. And it's a shortage every bit as dire as the highly publicized one facing corporate managers across the U.S.

Clancy coordinates lower-division undergraduate courses for the computer science department. And he simply can't find enough graduate-student assistants. He desperately needs them to help teach the huge influx of students currently entering the computer science and engineering programs.

"Our enrollments are higher than ever," Clancy says. "It's very difficult to hire teaching assistants for all the students who need attention."

And when the graduate students are found, it's equally difficult to hang on to them, Clancy explains. Just last year, a mediocre student who worked at the department as a $9-per-hour tutor got another job as an on-campus systems manager — to the far-sweeter tune of $27 per hour.

Clancy's dilemma is being repeated on campuses nationwide as the flood of students enrolling in computer science, electrical engineering and IT courses keeps rising. The trend of declining enrollments that began in the early 1980s and continued into the early 1990s has reversed itself — with a vengeance.

Today, campuses are reporting skyrocketing enrollments in virtually all computer-related fields. Many schools have reported increases in IT enrollments by 40% or more within two years. Some say their enrollments are doubling. And schools such as Berkeley are seeing a critical shortage of qualified teachers.

Eleanor Jordan, information systems chair of the Department of Management Science and Information at the University of Texas at Austin, says enrollment in computer science and management IT programs at the university have nearly doubled in the past two years. The reason: the publicity surrounding the large number of job vacancies and high salaries.

"Students see these as exciting fields where there are lots of jobs and they can make a lot of money," Jordan says. Like Berkeley, the University of Texas recently has struggled with staffing issues in the IT programs. "We can't grow the tenure track fast enough," Jordan says.

A HEALTHY STUDENT BODY?

Although the quantity of students is up, the quality may be down

Does increased enrollments mean that hiring organizations should breathe a collective sigh of relief? Not quite yet. Even as the number of students enrolling in computer-related courses increases, the quality of students enrolling appears to be declining.

Jordan, for one, has observed a slight drop in the ability of lower-division undergraduates. She attributes that to the fact that, as a major, computer science is now widely perceived by college students as a more attractive major than one with more of a business focus, such as IT management. That may be because the word "computer" is in the major's title, leading students to associate it with a career in computers.

The recent interest in computer science is, in part, because of the fact that the current crop of students spent their teen-age years playing games and hanging out in chat rooms. But once they enroll in their first programming class, they quickly learn hard new lessons. Many new enrollees find that they can't quite cut the computer science mustard.

"We're seeing a lot of kids coming into computer science but not making it through the first course," Jordan says. "Students appear to have more interest than ability."

Another, much longer-term, problem has to do with the gender gap. Although male students continually sign up for computer science programs, women, in general, apparently aren't interested in joining their scientific club.

An ongoing study by University of Alabama professor Tracy Camp indicates that the number of female undergraduates in computer science has shrunk by 24% in the past decade, and those levels are stubbornly staying put. At some prestigious universities, such as Berkeley, the number of women in computer science "is holding at about 20%," Clancy says.

Why is that the case? Because computer sciences are still largely perceived by women as unappealing, even compared with electronic engineering or the management-related role of IT manager, observers note. That may be because computer science courses, which center on hard-core technical and programming skills, are frequently male-dominated.

But even though women are staying away from the demanding courses of computer science, they appear to be less averse to business-related programs in IT management, says Jack Callon, director of new program development within the School of Engineering at the University of California, Santa Cruz (UCSC).

"The MIS program in the business school at San Jose State is loaded with women," Callon notes, adding that "a great MIS person is someone who wants to major in marketing, who happens to have technical aptitude."

THE DISCIPLINE PROBLEM

It isn't easy to define what discipline a computer science major is in

Academia also appears to have a problem sorting out one discipline from the next. "One of the big issues is that the disciplinary boundaries are so fuzzy," says Barbara Simons, president of the Association of Computing Machinery in

WHAT'S HAPPENING ON CAMPUS NOW

A look at recent IT graduate figures and current IT enrollment figures at select major colleges and universities

Schools	Location	Number of IT degree programs profiled	IT degrees conferred 1997	IT degrees conferred 1998	1998 seniors	1998 enrollment
Arizona State University	Phoenix	7	599	651	NA	2,908
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Florida State University	Tallahassee	5	421	155	468	1,072
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Georgia State University	Atlanta	4	207	265	NA	2,444
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ohio State University	Columbus	7	341	355	702	2,115
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Texas A&M University	College Station	7	554	558	943	3,276
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
University of Illinois	Urbana-Champaign	7	658	NA	NA	NA
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
University of Pennsylvania	Philadelphia	6	361	392	NA	1,284
University of Rochester	Rochester, N.Y.	7	97	99	24	NA
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
University of Wisconsin-Madison	Madison	6	204	229	206	633

METHODOLOGY: *Computerworld* contacted admissions offices, registrars and data administrators at the universities profiled and asked them to provide up-to-date information on IT enrollments and degrees conferred from 1997 to October 1998.

- Number of IT degrees profiled comprise graduate, undergraduate and other IT degree programs.
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A DECADE OF DECLINE, THEN RESURRECTION

The number of computer science degrees awarded nationally dropped substantially in the early 1990s, when the smallest college-aged population in years began to graduate. Those low numbers leveled off a few years ago and began to increase, data shows. Anecdotal evidence now suggests the numbers have been rising rapidly in the past two years.

Degree	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	8-year difference	Year of upswing
Bachelor's	39,927	NA	30,963	27,615	25,410	24,854	24,477	24,465	24,662	NA	-38%	1994
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Doctorate	374	NA	536	623	676	772	805	810	884	NA	+58%	1993
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Note: These figures represent computer science degrees only. No figures are currently available for the 1996-97 school year. (Source: National Science Foundation, Arlington, Va.)

THE LIST OF GRADUATE AND UNDERGRADUATE IT DEGREES PROFILED INCLUDES, BUT ISN'T LIMITED TO:

- Computer science
- Management information systems
- Computer information systems
- Computer engineering
- Electrical/computer engineering
- Software engineering
- Other

New York. Academia tends to break computer-related concerns into finer and finer particles, but students may have trouble understanding which major is which.

At Berkeley, for example, computer-related studies encompass computer engineering, computer science, electrical engineering, applied math and basic sciences. Some of those areas are put under the umbrella of a College of Engineering, while areas such as IT management are often put under the rubric of Letters and Science.

But while colleges and universities struggle with defining what a computer science major is and isn't, industry must deal with an incoming workforce of graduates that it perceives to be inadequately prepared to face its fast-changing needs.

John Keast, vice president and CIO at PG&E Corp. in San Francisco, said schools need to do a better job of making their graduates attractive to employers. He added that he didn't care about academic definitions of degree programs.

"CIOs are measured by how well they deliver systems that meet business requirements," Keast says. "For me, it's a question of finding a graduate that has successfully melded computer science principles with business focus."

How does Keast think universities are doing in preparing graduates for this challenge? "Not very well," he says.

Some observers within academia agreed with Keast. Callon says what's needed is a whole new way of thinking about computer-related curricula — one that more directly reflects the broader needs of the real world.

"Look, there's technology everywhere in the business world — in research, product development, manufacturing, sales and marketing, design and implementation, and in the user community, too," Callon says.

"A university should be able to offer various program choices to address each of these various dimensions," he says.

Some schools already are coming up with new programs that encompass both business and technical curricula. Take, for example, the growing number of colleges and universities that offer MBA degrees in technology ["The top 25 techno-MBAs," CW, May 19, 1997]. Callon, too, is starting a new class at UCSC that he calls "information systems management," which he contrasts to the business-school area of IT management.

"It's in the College of Engineering, but combines courses like economics, business and computer courses," Callon says. And he says internships are important, letting students learn to hold down a real job.

"In real estate, the most important thing is location, location, location," he says. "For a student who wants a good job, it's experience, experience, experience." □

Fryer is a freelance writer in Santa Cruz, Calif.

WHAT'S HAPPENING ON CAMPUS NOW

A look at recent IT graduate figures and current IT enrollment figures at select major colleges and universities

Schools	Location	Number of IT degree programs profiled	IT degrees conferred 1997	IT degrees conferred 1998	1998 seniors	1998 enrollment
Arizona State University	Phoenix	7	599	651	NA	2,908
Carnegie Mellon University	Pittsburgh	8	559	550	NA	1,806
Florida State University	Tallahassee	5	421	155	468	1,072
Georgia Institute of Technology	Atlanta	4	422	477	460	2,854
Georgia State University	Atlanta	4	207	265	NA	2,444
Massachusetts Institute of Technology	Cambridge	6	895	762	NA	NA
Ohio State University	Columbus	7	341	355	702	2,115
Purdue University	West Lafayette, Ind.	7	734	843	696	3,441
Texas A&M University	College Station	7	554	558	943	3,276
University of Georgia	Athens	4	179	253	360	1,017
University of Illinois	Urbana-Champaign	7	658	NA	NA	NA
University of Minnesota	Minnesota/St. Paul	7	304	382	NA	1,778
University of Pennsylvania	Philadelphia	6	361	392	NA	1,284
University of Rochester	Rochester, N.Y.	7	97	99	24	NA
University of Texas	Austin	6	632	826	NA	Not yet final
University of Wisconsin-Madison	Madison	6	204	229	206	633

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Master's	8,481	NA	9,399	9,643	9,324	9,530	10,167	10,421	10,332	NA	+18%	1987
Doctorate	374	NA	536	623	676	772	805	810	884	NA	+58%	1993
TOTALS	48,782	NA	40,898	37,881	35,410	35,156	35,449	35,696	35,878	NA	-26%	

Note: These figures represent computer science degrees only. No figures are currently available for the 1996-97 school year. (Source: National Science Foundation, Arlington, Va.)

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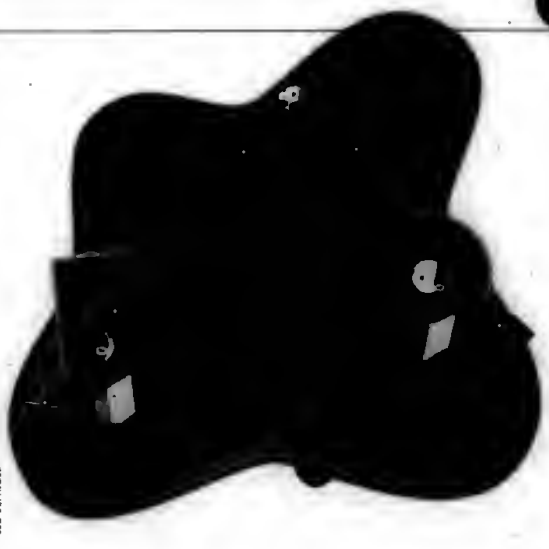

Bracing *for* EMU

DEPENDING ON WHOM YOU ASK, EUROPEAN MONETARY UNION WILL BRING EITHER HEAVEN OR HELL TO IT PROS

BY MELANIE MENAGH

QUICK TAKES ON THE EURO CHALLENGE

THE DEMAND

"There's going to be a tremendous amount of work to do on infrastructure build-out. It's more than just 'Let's rev the applications to support decimal points,' although even that's a major change. There will be substantial ripples back into supply and manufacturing. There will be a flood of inquiries at the help desk."

— Bob Chatham, senior analyst at Forrester Research Inc.

THE WORKERS

"We've got customer service systems that have existing players. It's just an additional role or responsibility for those already in place."

— Greg Horne, euro project manager for IT at Eastman Chemical Co.

THE SKILLS

"From a programmer's view, having specific skills doesn't really matter in this problem. This will pan out to be a more traditional maintenance job, maybe changing existing programs to implement a new feature. At a systems analyst level, regular maintenance-type analysis is not going to be good enough. You need to really understand financial analysis."

— Arshad Masood, CEO of Visionet Systems Inc.

THE OPPORTUNITIES

"The thing is, it'd be different if EMU were the only issue facing IT. At some point, we're going to run out of ZIP codes. And then we're going to run out of area codes, so the need for these types of conversion skills is not just going to go away. We need to find people who are driven, who can think logically. Who have a desire to succeed and want to take on a challenge."

— Barbara Schmit, director of IT at Computer Network Technology Corp.

The doomsayers have been predicting that all hell will break loose in the Old World and spill over into the New. Euro conversion work, they say, will be the most ticklish information technology problem since year 2000.

While the continent frets over European Monetary Union (EMU), how will it affect IT careers over on this side of the pond?

Depending on whom you talk to, the debut of the euro, on balance sheets Jan. 1, 1999, and in people's pockets by Jan 1., 2002, is either boom or bust for the IT world. Some companies attest with admirable sang-froid that "it's just another currency: We already run 179 others through our systems — this will make 180."

Others are girding their loins for an IT makeover of mammoth proportions. So, just how will EMU alter the U.S. IT job market in the near term and the long term? Where will jobs be created? What skills will be on call? Or will EMU have no real impact at all?

"It'a a global issue we have to deal with," says Barbara Schmit, director of IT at Computer Network Technology Corp., a networking solutions company in Minneapolis. "People think it has nothing to do with us because we're over here and it'a over there. But it's a worldwide phenomenon, and we're all kind of in it together."

What about skill-specific tasks? Rob Figliulo, chairman and CEO of SPR Inc., an IT services company in Oak Brook, Ill., says, "Mainframe skills will be needed. All of these business issues are going to have to be programmed into mainframe systems. The pricing models, inventory, shipping, billing — you're talking about large volumes of data. That's all mainframe work."

For entry-level people, EMU most likely won't mean a huge change in job descriptions. Much of the EMU legwork ia going to come at higher levels of IT and require special skills.

Again and again, people in the know stresa that for EMU, business skills, rather than IT skills, will sell.

"The euro is a business issue first, a tech issue secnnd," Figliulo says. "Time-to-market is a critical function here, a critical quality measurement. You're going to need people who can take the business rules and quickly put them into the systems, then you will be the winner."

So Figliulo says he's looking beyond the traditional IT scope for staffing. "We have a program training noncomputer people. What we're really going to need is people who know how to think and solve problems. It's better if they don't have a computer science background. We need someone who can define triangulation and talk to customers, not just sit in a corner and grind out code. I'd take an English major who can write up a spec [before an issue becomes a problem] and solve it as a business issue at the design level."

What are the long-term prospects of hopping onto the EMU bandwagon? Some analysts say that the horse is out of the barn: If you haven't been tackling it for the past few years, the opportunity has passed you by. Others see a long and bright future opening up in IT as EMU rolls out.

One area of growth could be the Internet. "The introduction of a single currency will certainly make it simpler for [electronic commerce] to work and will speed the penetration of inter-country electronic trading," says Andrew Mutch, a vice president at Managed Network Services, a subsidiary of GTE Corp. based in Cambridge, Mass. "Anything that causes an acceleration of Internet demand will ultimately ripple through to cause a tighter employment market."

But in many IT shops, managers plan to work with what they have. Arshad Masood, CEO of Visionet Systems Inc., a software developer in Princeton, N.J., says there won't be a lot of new IT jobs, but where needed, people with EMU skills will command impressive pay. "There are very few people who understand EMU, and they are in high demand," he says. "They can be getting $120,000 to $150,000. These people typically don't have a lot of computer expertise but have more in logistics. They've taken the initiative, read the books and taken the trouble to understand what the issues are. There's not a lot of broad demand, but there is a demand for high skills."

EMU may or may not be an enormous, immediate boon across IT, but the skills and experience it requires could be very valuable in the long term. □

Menagh is a freelance writer in Maple Corner, Vt.

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Software Developer. Designs, develops and modifies software used for business applications and interfaces, including graphic user interfaces, for use in Oracle relational database management systems using JAM and writing programs in JPL (JYACC Procedural Language) in a UNIX shell environment. Determines software integration and implementation problems as they relate to relational database modules and performs logical and flow testing of software systems used in relational databases. Develops database reports generation systems using SQR Report writer by using SQL Plus and SQL Forms and PL/SQL Oracle relational database software engineering tools as a bases for data summary information. Requires Master's degree in Computer Science. Also requires six months experience in the job to be performed. Hours: 9:00 a.m. - 5:00 p.m. 40 hours per week at $45.00 per hour salary. Must have proof of legal authority to work permanently in the U.S. Please send two copies of resume and cover letter to: Illinois Department of Employment Security, 401 S. State Street - 7 North, Chicago, IL 60605. Attention: Joanne Breaux. Reference #V-IL 19740-N. AN EMPLOYER PAID AD. NO CALLS.

SOFTWARE ENGINEER/Senior Staff Analyst. (Multiple Openings) Job duties include: Analyzing clients' needs. Identify user requirements in one or more Personal Computer environments, including Client-Server. Develop applications based upon design requirements and provide enhancements for existing applications. Implement testing and develop systems documentation. Evaluate user request for new or modified program or analyze and develop specifications for bridge design, to determine feasibility, cost and time required, compatibility with current system and computer capabilities. Consults with user to identify current operating procedures and clarify program objectives. Minimum requirements: Bachelor of Science Degree or Bachelor of Arts or its Equivalent in Computer Science or Computer Engineering, plus 2 years of experience in Consultant Programmer or Systems Analysts. Background should be with IBM, DEC/VAX or UNIX/RDBMS. For IBM experience in more than one of the following is required: COBOL, PL/1, JCL, IMS DB/DC, DB2, CICS or IDMS. For DEC/VAX, experience in more than one of the following is required: COBOL, C, RDB, FMS, RMS or SQL. For UNIX/RDBMS, experience in more than one of the following is required: Oracle, PL/SQL, SQL*Forms, SQL*Plus, Pro*C, AIX, C or C++, Pro*C, SQL*Net or UNIX shell programming. In the PC area, experience in one or more of the following is required, C or C++, relational databases, embedded processors, DSP, image processing, MS-DOS or Windows. In the AS/400 environment, experience with AS/400 COBOL or RPG as well as CL, subfiles, SEU, SDA and DDS is required. Experience for those working in Client Server should include one of the following: Powerbuilder, UNIFACE, VB, or Smalltalk. Other areas of expertise which are beneficial include: FOCUS, SAS, SYBASE, PROGRESS, INGRES, ORACLE or INFORMIX. Embedded Processors - Assembly Language (68000 series and/or 80/86) realtime. Salary $47,800 to $60,000 per year and 40 hrs/wk from 8:30 a.m. to 5:00 p.m. Applicants must have proof of present legal authority to work in the United States as a full time basis. Applicants must send two copies of their resumes to Mr. Mike Brooks; DWE-ALC; P.O. Box 7972, Madison, WI 53707-7972. Reference Case No. C100552. Employer Paid Advertisement

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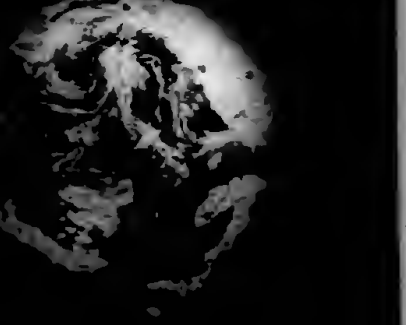

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Computer Network Administrator wanted by IT Co. in Union, NJ. Must have 3 yrs exp installing, configuring & maintaining of CISCO routers & switches, configuring & troubleshooting MS Win NT n/works & IBM Token ring Based N/works. BS in Comp Sci or Engg required. Respond to: HR Dept., Patel Consultants Corp, 1525 Norris Ave, Union, NJ 07103.

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Sr Programmer Analyst wanted by Computer Consulting Co. in Boston, MA. Must have 1 yr & mos exp dsgng & dvlpg fin'l applics on MS Win NT & Unix platforms; dvlpg client-server s/ware in C++ & Java; web based applics using Java, Javascript, PERL, HTML & CGI, and GUIs using MOTIF for X-Windows; distributed applics w/CORBA products incl Orbix & Orbix Web. Masters in Comp/Engg req'd. Respond to: HR Dept, Open Systems Technologies, 155 Massachusetts Ave, Suite 301, Boston, MA 02115.

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Programmer Analyst (J.O.N. 8045500) (10 Openings) Plan, develop, test and document computer programs, evaluate user requests for new or modified programs; and use Sun Solaris, Sun X-API, and Sybase System 11. Reqs. a Bachelor's Degree (or equiv in educ. and exp.) in Computer Science, Systems Analysis, Computer Information Systems, Computer Applications, Computer Engg., Electrical Engg., Electronic Engg., Electronics and Communication or Mathematics, plus 1 yrs. exp. in the job offered, or in the related occupation. Related occupations include Programmer, Analyst Programmer, Systems Analyst, Systems Engineer, Software Engineer, or Consultant. Will accept 3 yrs. of college education plus 3 yrs. exp. in the job offered or in a related occupation, in lieu of the required education and exp. Experience in the job offered or in the related occupation must include Sun Solaris, Sun X-API and Sybase System 11. Will also accept any equally suitable combination of education training and/or exp. which would qualify an applicant to perform the duties of the job. 40 hr/wk., M-F 8a-5p, $71,500.00/yr. Send resume with J.O.N. to Mr. Stan Majesky, Manager, Greene County Job Center, 953 East High Street, Waynesburg, PA 15370.

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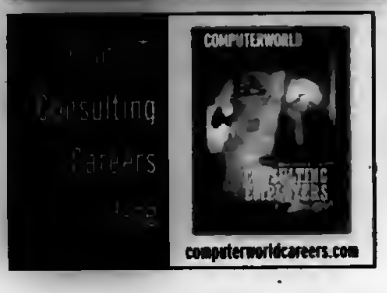

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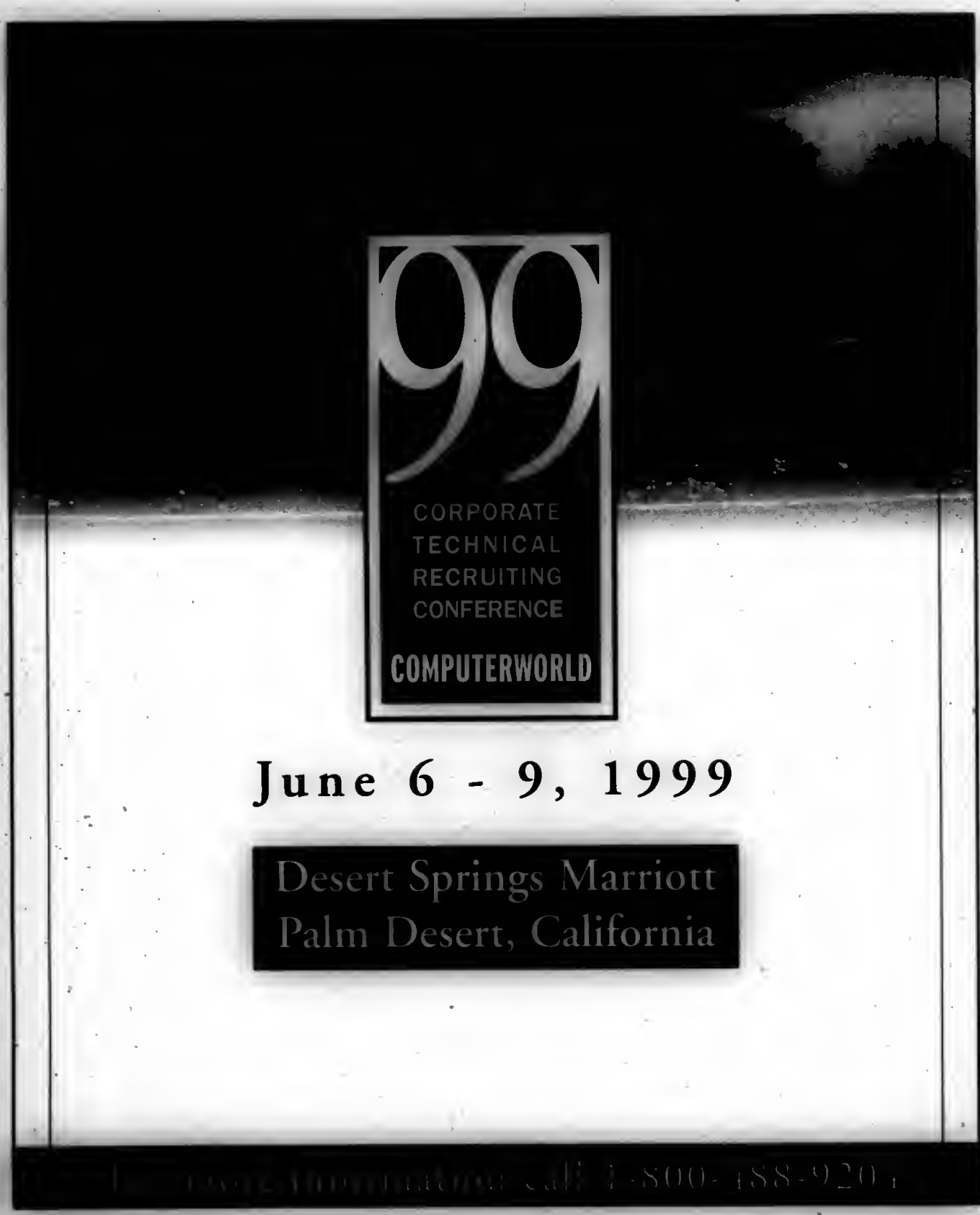
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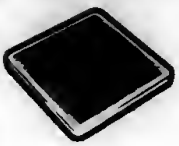

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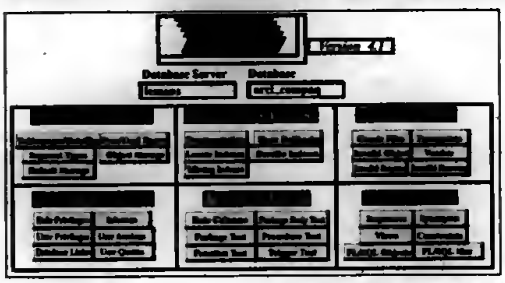

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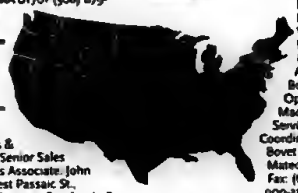

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The Week in Stocks

Gainers

Sitrix (L)	40.0
Xilinx Semiconductor Corp	34.7
Security Dynamics Technologies Inc. (L)	43.4
Security Dynamics (L)	43.4
ASM Lithography Holding (L)	42.2
Badge Networks (L)	42.2
Systems & Computer Technology (L)	38.4
Sensitive (L)	35.0

Losers

Lycos Technology (L)	-11.8
Yahoo! Inc. (H)	-11.3
America Online	-10.9
Lucent Technologies	-9.8
Exodus Corp.	-8.8
Amazon.Com	-8.6
Informix Corp.	-8.4
Vitesse Semiconductor Corp	-8.4

INDUSTRY ALMANAC

RealNetworks looking up

RealNetworks Inc.'s (Nasdaq: RNWK) stock shot up 7-7/8 to close at 34-7/8 last Monday after the company announced a partnership with IBM's Lotus Development Corp. that will give RealNetworks exposure to 25 million more users. RealNetworks will wrap its streaming media capabilities into Lotus' Notes and Domino.

That was a good move, says "California Technology Stock Letter" editor Mike Murphy. "Attaching video and audio to E-mail is going to be one of the next big areas."

The Seattle company went public last November with an opening stock price of 12-1/2. During the past six months, the price has had a roller-coaster performance (see chart).

RealNetworks' stock price hit an all-time high of 45 when the company announced record second-quarter earnings July 21. Two days later, it fell to 37-1/2 when Chairman and CEO Rob Glaser testified before a Senate committee against his former employer, Microsoft Corp. Glaser testified because Microsoft's NetShow streaming-media player allegedly had a bug that disabled certain versions of RealNetworks' RealPlayer Co. "He was going up against a giant, and it was possible he was going to get crushed," says Rob Martin, an analyst at Friedman, Billings, Ramsey & Co. in Arlington, Va.

The price kept dropping — hitting 17-7/8 on Sept. 11 — until agreements with key players started an upward climb.

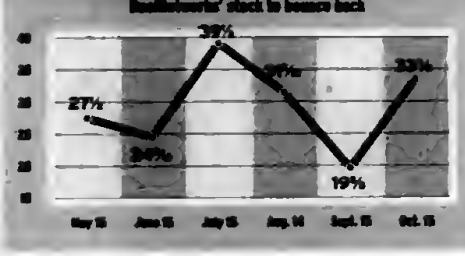
The stock jumped to 24-1/2 on Sept. 16 when RealNetworks and Intel Corp. agreed to integrate Intel's Streaming Web Video software into Real Networks' RealSystems Ga.

"A deal with Intel is always good," says Gary Schulte, an analyst at Multimedia Research Group Inc. in Sunnyvale, Calif. "But it doesn't seal success in the marketplace."

On Sept. 28, the stock bounced up to 41-1/4 when RealNetworks agreed to allow America Online Inc. to distribute RealPlayer. — Stefanie McCann

ROLLER-COASTER RIDE

A recent deal with Lotus Development Corp. caused RealNetworks' stock to bounce back



Exchg	52-Week	Range		Oct 16 '98 Last Price	Wk Net Change	Wk Pct Change
NASDAQ						
ADBE	51.87	23.87	Adobe Systems Inc.	36.18	3.43	7.8
AZRN	56.87	8.12	Aspen Technology Inc (L)	8.94	0.38	4.4
ADSK	50.06	25.87	Autodesk Inc (L)	24.44	0.69	2.8
AMD	47.75	11.00	Amd Technology (L)	14.13	0.63	4.6
BOOL	69.00	16.00	Boole & Babbage Inc (L)	38.19	1.81	9.8
CDN	39.00	19.13	Cadence Design Systems (L)	24.81	5.63	29.3
CBTSY	69.87	6.68	CBT Group Plc (L)	7.31	-2.00	12.7
CHKPF	90.50	16.87	Checkpoint Software (L)	17.69	4.13	30.5
CTXS	76.75	36.37	Citrix Systems Inc. (H)	48.50	4.75	8.7
COGNF	80.40	14.75	Cognos Inc. (L)	16.75	0.00	0.0
CA	61.93	26.00	Computer Associates Int's	35.88	3.25	10.0
CPWR	63.00	27.62	Compuware Corp (H)	47.75	1.25	2.7
DCTM	89.62	10.75	Documentum (L)	35.69	5.25	31.3
EFII	53.00	12.87	Electronics For Imaging	22.00	5.38	32.2
HMCS	47.12	22.50	Hmc Software (L)	30.25	4.38	16.9
IDIXC	95.75	09.37	Idx Systems	41.62	0.56	1.2
IFMX	10.43	3.00	Informix Software Inc	4.38	0.72	17.7
INTU	67.93	26.25	Intuit	44.25	5.38	13.8
JDNY	30.25	22.75	Jack Henry And (H)	82.44	8.25	24.1
LGTO	56.18	15.75	Legato Systems Inc (H)	41.00	9.56	0.3
MACR	19.31	7.12	Macromedia Inc.	16.31	2.00	19.3
MANU	80.17	8.12	Manugistics Group Inc. (L)	8.25	1.06	14.8
MENT	12.00	3.83	Mentor Graphics (L)	6.91	0.41	6.3
MSFT	179.62	58.00	Microsoft Corp	108.75	7.00	0.1
NETB	56.87	25.50	Netware Associates (L)	33.75	3.00	11.1
QNM	37.87	09.37	Network General (L)	33.25	1.19	3.4
NOVL	13.62	6.81	Novell Inc.	12.62	1.56	13.4
ORCL	37.25	17.75	Oracle Corp	36.44	3.94	3.7
PMTC	56.31	8.00	Parametric Technology Corp (L)	8.88	0.62	8.8
PSFT	57.43	18.25	Peoplesoft Inc. (L)	22.44	-0.81	-3.5
PERF	66.00	19.56	Pmsi	36.50	-0.00	1.4
PLAT	34.31	8.00	Platinum Technology Inc. (L)	14.19	5.44	20.7
RATL	18.93	7.00	Rational Software Corp	17.75	3.13	21.4
SCUR	13.25	8.37	Secure Computing Corp	10.19	0.00	0.0
SOFT	42.75	5.43	Security Dynamics (L)	10.13	3.00	42.4
SI	50.25	40.12	Sterling Commerce Inc. (L)	28.63	3.63	14.5
SSW	32.81	56.25	Sterling Software Inc.	25.25	3.88	14.4
SDRC	89.00	7.38	Sdrc (L)	8.44	-0.72	7.8
SYBS	12.00	4.00	Symbol Inc. (L)	5.22	0.25	5.1
SYNC	12.62	8.88	Synoptics Comp (L)	10.69	1.63	18.1
SNPS	47.13	24.56	Synopsys	25.31	2.88	7.2
SCTC	30.87	8.50	Systems & Computer Tech. (L)	12.63	3.00	38.4
BAANF	55.50	30.62	The Baan Co. N.V (L)	12.25	-3.62	-37.5
VNTV	30.75	3.00	The Ventive Corp (L)	6.38	0.78	19.0
TSAI	69.38	27.00	Transl. Sys. Accn (L)	34.00	-0.62	0.9
VITTS	69.25	23.75	Vantive Software Corp (H)	40.62	5.44	15.5
WIND	57.62	09.00	Wind River Systems Inc. (H)	40.75	4.75	13.2
NYSE						
ASI	65.62	39.19	Antenna Communications	49.00	2.88	6.1
AT	48.93	35.16	Alltel Corp (H)	44.94	-0.44	1.0
ATT	54.91	30.32	Arbentech Corp (H)	49.94	1.75	-2.4
ANDW	50.00	30.57	Andrew Corp (L)	34.50	5.38	27.1
T	68.50	43.06	At&t	60.38	1.62	2.8
BCE	45.62	31.62	Bce, Inc. (L)	31.00	2.56	10.3
BEL	53.00	37.37	Bell Atlantic	50.00	0.31	0.6
BLS	82.75	45.25	Bell South (H)	80.13	1.44	1.9
CSN	39.62	20.87	Cincinnati Bell Inc (L)	21.63	0.00	0.3
CMCSK	69.25	55.27	Comcast	47.25	4.75	11.2
CQ	42.75	20.31	Comsat Corp	34.69	-0.75	2.2
CDN	80.63	38.25	Cox Communications Inc. (H)	53.19	5.44	11.5
GSTBF	37.12	8.31	Globalstar Telecom Ltd. (L)	10.00	1.00	30.5
GTE	64.37	40.00	Gte Corp	57.31	1.50	2.7
IXRTL	34.12	15.37	Nextel Communications (L)	18.00	1.00	5.2
SPOT	60.12	09.00	Panamsat (L)	20.19	-4.00	13.9
QCOM	70.37	37.75	Qualcomm (L)	40.81	5.88	14.4
SBC	61.62	30.00	Sbc Communications (H)	42.75	-2.13	-4.8
FON	80.15	09.75	Sprint Corp (H)	74.88	1.38	1.8
TCOMA	44.00	18.00	Tele Communications	40.62	2.56	6.3
TDS	56.12	40.62	Telephone And Data Systems (L)	54.38	3.38	6.6
USW	56.56	36.87	Us West (H)	57.00	3.44	6.4
VIA	80.37	26.00	Viacom	60.63	4.00	7.0
WCII	48.18	20.25	Winstar Communications Inc (L)	15.75	1.38	10.5
WCOM	57.87	28.50	Worldcom Inc	40.00	4.00	10.0
AMEX						
ACKM	28.25	14.19	Ackrom Corp	21.63	2.00	10.4
AFA	30.75	25.50	Affiliated Computer Servs	29.31	1.94	7.1
AMSY	34.00	18.25	American Mgt Systems	26.50	2.19	9.0
AUD	40.43	47.37	Automatic Data Processing (H)	76.56	4.75	-0.6
BSYS	45.00	20.25	Bisys Group, Inc.	30.00	0.75	1.1
CATP	60.37	13.37	Cambridge Technology Prtnrs (L)	17.50	0.62	3.4
CEN	00.05	09.25	Cendant	14.19	4.00	0.3
CIBR	40.87	13.31	Cisco Inc. (L)	16.94	0.75	4.6
CDO	23.25	12.43	Comdisco	14.50	1.50	11.7
CMRZ	53.50	17.25	Computer Horizons Corp (L)	00.00	-0.75	-3.5
CSC	74.87	33.67	Computer Sciences (H)	57.94	5.44	0.3
DST	64.56	56.00	Dst Systems Inc.	46.13	8.00	21.2
EDS	56.87	30.56	Electronic Data Systems	36.75	4.13	12.6
FDC	39.00	19.00	First Data Group (L)	23.00	1.75	8.4
FISV	40.37	25.00	Fisery	42.13	2.88	3.3
IT	21.56	2.00	Gartner Group (L)	21.56	2.25	11.7
HBOC	38.87	19.31	Hbo & Co	29.56	4.00	12.4
IEA	60.00	24.00	Ideon	34.13	2.44	7.7
NDC	00.00	00.18	National Data (L)	12.69	5.88	18.5
PAYX	52.05	22.49	Paychex, Inc (H)	43.38	0.63	1.5
PMTS	00.48	11.00	Pmt Services	21.38	0.00	0.0
REGI	31.75	0.38	Renaissance Worldwide	11.31	-1.81	10.4
RYN	56.00	12.62	Reynolds & Reynolds	17.00	0.18	1.1
SFE	45.37	17.72	Safeguard Scientifics (L)	19.75	0.56	2.9
SAPE	62.00	25.87	Sabre Corp	38.88	8.00	25.6
SMS	86.56	45.00	Shared Medical Systems (L)	53.18	9.73	12.4
SDS	40.00	35.68	Sungard Data Systems (L)	28.00	0.00	0.0
SYNT	12.62	8.68	Synetic, Inc (L)	17.00	-0.88	-4.9
TECD	53.12	33.75	Tech Data (H)	42.50	4.50	11.8
TSS	00.91	12.06	Total System Services, Inc.	16.75	1.63	10.7
TSAI	45.00	27.00	Transaction Sys. Architects (L)	34.00	0.31	0.9
OTC						
COMS	56.00	22.93	3Com Corp	31.50	4.18	15.4
ADCT	62.62	75.75	ADC Telecommunications Inc. (L)	00.62	2.63	14.6
ANTC	25.00	10.37	Antec	13.56	1.00	7.7
ASND	55.06	22.00	Ascend Communications Inc	46.38	-4.50	10.7
BNYN	15.37	2.13	Boonton Systems Inc	3.31	0.18	6.0
CS	32.00	6.62	Cabletron Systems	9.00	0.00	0.0
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CSCO	30.75	00.57	Cisco Systems Inc.	52.13	7.00	14.1
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DRCY	34.00	12.00	Lm Ericsson (L)	25.87	4.69	27.4
LU	108.00	76.18	Lucent Technologies	72.00	9.87	15.6
MARCF	8.50	1.75	Marcle Networks (L)	5.00	0.88	41.2
NCDI	13.13	4.87	Network Computing Dev (L)	5.50	-0.88	13.7

Exchg	52-Week	Range		Oct 16 '98 Last Price	Wk Net Change	Wk Pct Change
NBIS	00.62	8.00	Network Equipment Tech (L)	10.00	1.38	15.9
NN	64.62	15.43	Newbridge Networks (L)	17.63	2.06	13.5
NOKIA	92.75	31.62	Nokia Corp	78.75	3.50	4.7
NT	60.23	00.81	Nortnews Telecom Ltd (L)	39.31	5.63	16.9
PAIR	30.00	6.00	Pairgain Technologies Inc. (L)	7.97	1.75	48.1
PCYL	11.93	4.75	Picturetel (L)	6.00	0.38	6.7
SFA	37.93	11.75	Scientific Atlanta (L)	14.13	0.56	4.1
SHVA	16.37	2.75	Shiva (L)	4.00	1.09	60.0
TLAB	93.13	31.37	Tellabs Inc (L)	63.44	8.88	18.8
USW	68.56	56.87	Us West (H)	57.00	3.44	6.4
VRLC	11.18	2.87	Verilink (L)	3.88	0.25	6.9
WSTL	22.18	2.75	Westell Technology Inc. (L)	3.63	0.63	20.9
XYLN	31.31	8.62	Xylan	13.62	2.31	20.4
NASDAQ						
ADPT	52.00	7.87	Adaptec (L)	11.00	2.00	22.5
AMD	51.00	8.31	Advanced Micro Devices (L)	16.69	1.38	9.9
ALTR	53.56	28.25	Altera	37.63	4.63	14.0
ADI	19.62	12.00	Analog Devices (L)	14.94	0.63	4.4
AMAT	50.87	21.56	Applied Materials	28.75	5.11	21.7
ASMLF	48.68	12.93	Asm Lithography Holding (L)	19.56	5.75	42.2
HRS	33.31	23.50	Harris Corp (L)	31.00	3.00	10.7
INTC	99.62	68.65	Intel Corp	94.18	0.00	0.4
KLAC	98.18	20.73	Kla Instruments (L)	26.00	1.00	4.5
LLTC	81.37	39.12	Linear Technology (L)	54.00	11.00	26.0
LSI	29.81	18.56	Lsi Logic (L)	19.31	-0.25	1.2
MRIM	42.00	22.31	Mrain Integrated Products (L)	29.13	5.18	21.2
MU	00.93	00.00	Micron Technology	32.62	4.51	15.2
MOT	72.00	00.37	Motorola (L)	49.18	3.81	8.4
NSM	30.87	7.62	National Semiconductor (L)	8.94	0.63	10.0
STM	91.75	25.87	Sgs-Thomson Microel Semicnductr (L)	46.75	6.19	15.3
SLR	33.00	20.87	Solectron Corp (H)	51.81	5.94	8.2
TER	59.18	15.00	Teradyne (L)	24.44	2.44	35.8
TXN	62.93	38.62	Texas Instruments	60.00	7.00	13.7
UNPH	09.62	26.25	Unipheze	47.00	6.81	16.9
VTSS	37.19	15.81	Vitesse Semiconductor Corp	27.31	5.44	44.7
XLNX	48.00	28.56	Xilinx	29.13	3.51	8.2
NYSE						
AAPL	45.75	12.75	Apple Computer Inc	27.38	2.25	8.4
ASPX	12.50	1.62	Aspect Systems (L)	1.88	0.00	0.0
CPQ	49.12	22.93	Compaq (L)	27.20	0.75	2.8
DGN	00.93	7.00	Data General	10.56	0.56	5.6
DELL	69.25	12.50	Dell Computer Corp (H)	57.38	4.56	8.6
GTW	68.75	25.00	Gateway 2000 Inc.	45.75	2.00	4.6
HWP	82.37	47.00	Hewlett-Packard Co. (L)	52.75	6.19	9.4
HIT	68.68	00.16	Hitachi Ltd.	47.50	1.25	2.7
IBM	148.75	89.62	Ibm (H)	135.63	8.31	6.5
MUEI	18.25	8.43	Micron	10.13	1.00	0.3
MOT	72.00	39.57	Motorola (L)	00.18	2.61	8.4
NATI	00.56	17.50	National Instruments Corp (L)	21.15	3.88	14.2
NCR	69.37	23.50	Ncr	30.50	0.69	2.3
NIPNY	63.87	51.00	Nec (L)	54.63	1.13	5.4
PRCM	18.25	5.50	Precision Tech Inc (L)	4.00	-0.31	-5.3
SQNT	27.12	5.62	Sequent Computer Systems (L)	7.03	1.09	22.3
SGI	17.81	7.31	Silicon Graph (L)	8.56	0.38	4.6
SNE	00.18	00.25	Sony (L)	70.00	5.00	6.8
SUN	83.87	21.68	Sun Microsystems (H)	54.62	5.80	12.6
SUNW	13.31	30.37	Sun Microsystems (H)	49.81	0.31	14.3
TEXN	6.00	2.00	Texas Micro (L)	2.56	-0.08	-2.4
TRCD	1.56	0.46	Tandem Systems	0.47	-0.00	-6.3
UIS	40.68	13.12	Unisys	23.81	3.69	17.8
AMEX						
AMZN	147.00	21.12	Amazon Com	99.81	8.63	9.3
AOL	140.00	32.00	America Online	105.00	10.69	11.6
ATHM	57.25	18.00	Athenae Corp	45.50	5.44	22.7
CKFR	51.50	8.75	Checkfree (L)	9.23	0.03	7.2
CMGPF	69.50	10.87	Checkpoint Software (L)	17.30	4.13	30.0
CYCH	27.75	5.87	Cybercash Inc. (L)	7.75	1.50	24.0
EDFY	22.12	4.87	Edify Corp	5.44	-0.44	3.4
EGRP	37.93	10.00	E-Trade Group Inc. (L)	14.81	1.91	24.8
XCIT	55.56	8.93	Excite, Inc	33.75	2.15	6.7
SIEL	45.00	7.12	Inprotect	25.56	2.06	10.0
LCOS	53.62	9.81	Lycos, Inc	09.56	5.44	0.0
NSCP	44.50	14.87	Netscape Communications	00.15	2.88	13.4
OMKT	09.12	4.25	Open Market Inc. (L)	8.75	3.75	35.0
OTEXF	25.90	8.00	Open Text Corp	12.63	1.38	13.5
PSIX	21.38	4.25	Psinet	12.88	2.88	22.5
QDEX	2.87	0.25	Quantumtech Corp	0.45	0.14	9.5
SDTI	09.75	5.43	Security Dynamics (L)	10.13	3.00	43.4
SPYG	15.57	4.00	Spyglass Inc	10.63	1.00	10.4
YHOO	134.62	17.12	Yahoo! Inc (H)	117.00	11.38	10.8
OTC						
ADPT	52.00	7.87	Adaptec Inc (L)	11.00	2.00	22.5
APCC	39.50	22.12	American Power Conversion (H)	37.00	0.63	1.7
CANNY	00.75	17.00	Canon Inc. (L)	30.75	2.75	75.3
DBD	53.31	18.12	Diebold Inc. (L)	37.50	6.25	29.6
EK	68.50	51.31	Eastman Kodak Co.	73.94	-8.11	-9.9
EMC	61.50	25.18	Emc (H)	55.00	5.00	11.4
IOM	16.75	2.93	Iomega (L)	3.75	0.50	12.0
LSK	75.38	29.75	Lexmark Int'L Group Inc. (H)	00.00	8.00	14.4
QNTM	40.62	10.81	Quantum	14.50	0.19	0.8
SEG	39.56	16.18	Seagate Technology	22.18	-2.18	-9.8
STK	51.12	20.18	Storage Technology (L)	56.19	1.13	4.9
TEK	48.19	13.62	Tektronix (L)	16.44	1.44	8.6
XRX	116.50	00.18	Xerox	36.50	5.25	5.8

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Taking the measure of metrics

Service-level agreements miss the mark on what users need to know

By Cynthia Bournellis

THE UNRELIABILITY of distributed client/server systems and the ups and downs of network performance are putting service-level agreements (SLA) back in the limelight.

Information technology managers are finding that users don't care about the technical details of performance metrics that most SLAs rely on and instead just want a guarantee that the network is immediately accessible — or at least a nontechnical status report — IT managers told *Computerworld*. To satisfy users' needs, IT managers are realizing that they must revamp certain metrics.

A service-level agreement is a contract between IT groups and certain business units in which IT promises to deliver a specified level of performance requirements across the network.

At this week's Networld/Interop 98 trade show in Atlanta about 55,000 IT pros will get an earful on service-level management and internal SLA metric implementations.

Availability is one metric used to guarantee network and application uptime. For example, employees in the accounting unit at LSI Logic Inc., a chip maker in Milpitas, Calif., want to know if their SAP AG application is working at the accounting office in Tokyo, said Bob Rubenstein, director of global network services at LSI.

LSI plans to enhance the SLA's effectiveness by giving users a Web-based, nontechnical status report that tells them what problems might be affecting the availability of SAP. Having that information readily available also will reduce the number of calls users make to the help desk, said David Bristow, manager of enterprise management services at LSI.

NCR Corp. in Dayton, Ohio, is reexamining the availability metric of its SLA for the firm's customer support management system that's used for billing, logistics and service calls.

Under the current SLA, promised availability of the systems and applications is about 99%. That percentage isn't unreasonable, but it's high, because it doesn't measure NCR's regional sites by business processes and their priority, said John Farren, the management system's support manager.

Business executives rank response time as the second most important service factor relating to SLAs, after availability, according to a study conducted by Cahners In-Stat Group in Newton, Mass.

TOUGH TO MEASURE

But response time is the hardest metric to measure. Current tools can be costly and require the deployment of software probes and agents throughout the network or the use of independent products, each of which focuses on a single point in the network.

For example, Computer Associates International Inc. in Islandia, N.Y., plans to incorporate neural networking technology into a future version of its Unicenter TNG Framework. Neural networks can learn patterns of system operations to determine if the patterns are outside of a normal mode of operation, said a CA executive. Based on that, the technology could anticipate a response-time problem by predicting the probability of a network or application failure in advance.

Concord Communications Inc. in Marlboro, Mass., a developer of network reporting and analysis software tools, is addressing response time by integrating its tools with products from Ganymede Software Inc. in Research Triangle Park, N.C., that test and monitor networks from the application layer.

Despite vendor efforts, current products still fall short, said John Morency, an analyst at Renaissance Worldwide Inc. in Newton, Mass. He said what's needed are software tools that correlate an application's behavior with other activities going on in the network, such as outages or a faulty network interface card. □

SERVICE-LEVEL AGREEMENTS INDEX

The most important service factors for the SLA:

- Availability (78%)
- Response time (68%)
- Performance (64%)

Types of applications used to view service levels:

- Help desk (39%)
- Network management (35%)

Which aspect of service-level management is most difficult?

- Measuring the SLA (60%)
- Quantifying return on investment for the SLA (53%)
- Planning performance requirements (46%)

Base: Survey of 308 IT managers; multiple responses allowed

Source: Cahners In-Stat Group, Newton, Mass.

Network planning keeps costs down

By Matt Hamblen
ORLANDO

NOBODY PLANS TO FAIL, but plenty of network managers fail to plan.

At least that's the upshot of an informal survey of 500 network managers taken at last week's Gartner Group Symposium ITxpo '98. Only half said they had written network strategies for their companies.

Failing to do long-term written planning means companies will make impulse decisions on buying network gear and services that will be costly and might not take advantage of upcoming technologies, Gartner Group Inc. analysts said.

Gartner analysts said the high number of companies without written plans matches what they've seen in their informal work with clients. Network needs often haven't been given priority by business managers.

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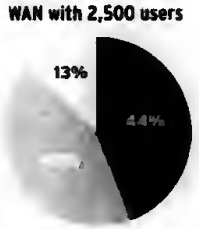
John A. Smart, director of network services at the Ohio Bureau of Workers' Compensation, Pike and several other managers said they already had begun to combine the LAN and WAN service teams, which has resulted in significant savings.

Planning helps reduce IT staffs for WANs because labor and the offices to support those workers account for 43% of a WAN and carrier services account for 44% (see chart).

Smart said he planned to revisit his network strategy after the Gartner conference, partly to find ways to ensure that he gets plenty of bids from major network gear providers.

Gartner estimates that a company with 73 sites in a WAN will spend $658,000 for WAN costs with carriers, including a reduction of up to 50% for local access when long-distance carriers are able to provide it instead of a local carrier. □

Cost breakdown for a WAN with 2,500 users



Source: Gartner Group Inc., Stamford, Conn.

Taking the measure of metrics

▸ Service-level agreements miss the mark on what users need to know

By Cynthia Bournellis

THE UNRELIABILITY of distributed client/server systems and the ups and downs of network performance are putting service-level agreements (SLA) back in the limelight.

Information technology managers are finding that users don't care about the technical details of performance metrics that most SLAs rely on and instead just want a guarantee that the network is immediately accessible — or at least a nontechnical status report — IT managers told *Computerworld*. To satisfy users' needs, IT managers are realizing that they must revamp certain metrics.

A service-level agreement is a contract between IT groups and certain business units in which IT promises to deliver a specified level of performance requirements across the network.

At this week's Networld/Interop '98 trade show in Atlanta, about 55,000 IT pros will get an earful on service-level management and internal SLA metric implementations.

Availability is one metric used to guarantee network and application uptime. For example, employees in the accounting unit at LSI Logic Inc., a chip maker in Milpitas, Calif., want to know if their SAP AG application is working at the accounting office in Tokyo, said Bob Rubenstein, director of global network services at LSI.

LSI plans to enhance the SLA's effectiveness by giving users a Web-based, nontechnical status report that tells them what problems might be affecting the availability of SAP. Having that information readily available also will reduce the number of calls users make to the help desk, said David Bristow, manager of enterprise management services at LSI.

NCR Corp. in Dayton, Ohio, is reexamining the availability metric of its SLA for the firm's customer support management system that's used for billing, logistics and service calls.

Under the current SLA, promised availability of the systems and applications is about 99%. That percentage isn't unreasonable, but it's high, because it doesn't measure NCR's regional sites by business processes and their priority, said John Farren, the management system's support manager.

Business executives rank response time as the second most important service factor relating to SLAs, after availability, according to a study conducted by Cahners In-Stat Group in Newton, Mass.

TOUGH TO MEASURE

But response time is the hardest metric to measure. Current tools can be costly and require the deployment of software probes and agents throughout the network or the use of independent products, each of which focuses on a single point in the network.

For example, Computer Associates International Inc. in Islandia, N.Y., plans to incorporate neural networking technology into a future version of its Unicenter TNG Framework. Neural networks can learn patterns of system operations to determine if the patterns are outside of a normal mode of operation, said a CA executive. Based on that, the technology could anticipate a response-time problem by predicting the probability of a network or application failure in advance.

Concord Communications Inc. in Marlboro, Mass., a developer of network reporting and analysis software tools, is addressing response time by integrating its tools with products from Ganymede Software Inc. in Research Triangle Park, N.C., that test and monitor networks from the application layer.

Despite vendor efforts, current products still fall short, said John Morency, an analyst at Renaissance Worldwide Inc. in Newton, Mass. He said what's needed are software tools that correlate an application's behavior with other activities going on in the network, such as outages or a faulty network interface card. □

SERVICE-LEVEL AGREEMENTS INDEX

The most important service factors for the SLA:

- Availability (78%)
- Response time (68%)
- Performance (64%)

Types of applications used to view service levels:

- Help desk (39%)
- Network management (35%)

Which aspect of service-level management is most difficult?

- Measuring the SLA (60%)
- Quantifying return on investment for the SLA (53%)
- Planning performance requirements (46%)

Base: Survey of 308 IT managers; multiple responses allowed

Source: Cahners In-Stat Group, Newton, Mass.

Network planning keeps costs down

By Matt Hamblen
ORLANDO

NOBODY PLANS TO FAIL, but plenty of network managers fail to plan.

At least that's the upshot of an informal survey of 500 network managers taken at last week's Gartner Group Symposium ITxpo '98. Only half said they had written network strategies for their companies.

Failing to do long-term written planning means companies will make impulse decisions on buying network gear and services that will be costly and might not take advantage of upcoming technologies, Gartner Group Inc. analysts said.

Gartner analysts said the high number of companies without written plans matches what they've seen in their informal work with clients. Network needs often haven't been given priority by business managers.

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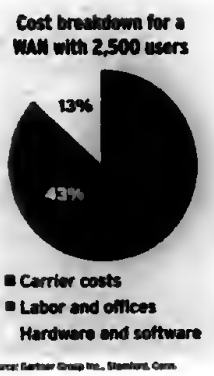

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Users asked to pony up for bandwidth

By Cynthia Bournellis

MAYWOOD, N.J.-BASED start-up Apogee Networks Inc. last week released a network resource management tool that lets information technology departments translate wide-area network usage data into dollars and cents, holding individual business units accountable for expenditures.

The NetCountant software lets IT allocate costs and identify and correct usage patterns that cause WAN costs to soar.

Bandwidth costs for the enterprise account for up to 80% of total network expenditures, according to Infonetics Research Inc. in San Jose, Calif. And bandwidth consumption is growing 20% to 50% per year.

"You can't have the network get in the way of your business, so you always need enough bandwidth to satisfy demands," said Leo Esposito, senior vice president of telecommunications and technology at Fidelity Investments in Boston. Fidelity's bandwidth expenses have doubled in three years, he said.

The way to gain control over that is to show each business unit what it's using and make it pay for it, he said. That way, "people will think twice about bandwidth consumption once they see, for example, charges for E-mailing a 30M-byte file."

Fidelity's use of NetCountant has caused internal software developers to rewrite applications so they use less bandwidth. Other departments have agreed to use compression software.

Even IT has changed its ways at Fidelity. For example, servers have been repositioned to shorten the distance the data has to travel over the WAN. "There is a cost to do this, but typically, the benefit outweighs it," Esposito said.

HEADS UP

NCR Corp. wants to show its business units their network usage — the company expects its bandwidth consumption to grow 42% annually. "They aren't cognizant of all of the demands placed on the network," said Rich Walker, project manager at NCR's Global Network Solutions unit in Dayton, Ohio. He said NetCountant has made NCR realize that it could use certain applications during off-peak times and reposition servers.

Few tools detail bandwidth usage as NetCountant does, said consultant Peter Sevcik at Northeast Consulting Resources Inc. in Boston. Companies today estimate bandwidth consumption with conventional wisdom, rather than tracking it with known measurements. For example, before NetCountant, Fidelity billed departments based on head count. "If your business unit had 5,000 people out of 25,000 [total employees], you paid for one-fifth of the bandwidth," Esposito said.

NCR did use known measurements, but they were hard to gather: It previously measured bandwidth consumption through IP addressing technology embedded in its routers, but that required porting information into a spreadsheet and manually deciphering the network conversations and calculating the costs. NetCountant is more automatic and helps NCR calculate costs and provide a bill to each line of business.

Because NetCountant can show IT and business units who's using the network and for what reasons, a firm could ask its employees to pay a fee for personal use of the Internet. "They could say, 'If you use the bandwidth to trade stocks, that's fine. Just pay us $3 for the bandwidth,' " said Stephen Elliot, an analyst at Cahners In-Stat Group in Newton, Mass.□

Gotchas

CONTINUED FROM PAGE 1

Philadelphia. "It may be cheaper to add enough bandwidth to your network so you don't have to worry about congestion."

Nonetheless, users looking at policy networking need to first baseline their network to determine how heavily — or lightly — used it is, said Jim Fey, director of strategic technology at PMI Mortgage Co. in San Francisco. "Otherwise, you're making decisions in a vacuum and solving problems that never existed," he said of users with bountiful bandwidth who still implement policy networking.

Information technology managers also need to determine how little bandwidth their applications can get by with before deciding if policy networking is the answer — something many users haven't done, said Tom Nolle, president of CIMI Corp., a Voorhees, N.J., technology assessment company.

"We surveyed 119 companies and found that none had attempted to estimate the minimum bandwidth threshold their applications require," Nolle said. "Although users are interested in policy networking, this is an indication that buyers aren't taking it seriously yet."

Also, policy networking can add work for network devices such as routers, according to Eric Pylko, global infrastructure coordinator at Eastman Kodak Co. in Rochester, N.Y. "Cracking [opeo] packets to determine their priority can take a lot of a router's processing power." Users may need to add special cards to the boxes to handle the extra load, he added.

How to prepare for policy networking

1. Baseline your network to determine usage
2. If congested, examine policy networking
3. Determine the minimum amount of bandwidth that your applications need
4. Create a steering committee to prioritize applications
5. Make sure members realize that increasing a priority for one application means decreasing a priority for another
6. Make sure the priorities are in sync with company's business objectives

POLITICAL ISSUES

Firms implementing policy networking then must face the big, hidden management question: Who decides which applications get top priority when network bandwidth is limited?

Not the network operations staff. Only five of the 119 users Nolle surveyed said it's reasonable to give that authority to the networking group. The answer for some analysts is a decision-by-committee approach.

"What people need to do is create a policy steering committee comprising the highest-level business unit managers they can get," said Lynn DeNoia, an analyst at Strategic Networks, a Needham, Mass., consulting and research firm. "The trick will be to make sure that policy decisions are in line with the company's business objectives." She said that will be difficult as each faction will say its applications should get top priority.

So where does IT fit in? "The steering committee process would work best if someone from the networking side was involved, so people don't get unrealistic expectations about what can be implemented," she said.

For example, Nolle said, the committee members need to start with every application receiving equal access.

"So if one application's priority is raised, they must lower the priority of another. Policy networking robs Peter to pay Paul," he said.□

Gigabit products get top billing

By Bob Wallace

NEARLY FIVE MONTHS after the Gigabit Ethernet standard was approved, high-speed 1G bit/sec. switching products will take center stage at this week's Networld/Interop '98 conference in Atlanta.

Gigabit Ethernet sales are expected to soar from $19.8 million last year to roughly $1.36 billion in 2001, according to Dataquest in San Jose, Calif. And ports shipped will skyrocket from 8,100 last year to 1.55 million in 2001.

3Com Corp., Cabletron Systems Inc. and Lucent Technologies Inc. will show Gigabit Ethernet products alongside their mainstream switches. Start-up NetScout Systems Inc. will debut an application flow monitor.

- **3Com** will showcase its new CoreBuilder 9000 Gigabit Ethernet switch, which can support 12G 1G bit/sec. ports and 504 Fast Ethernet (100M bit/sec.) ports, all using a 560G bit/sec. backplane. The system can support routing at 56 million packets per second in Layer 3 switching mode. It's available now at a base price of $35,800, with a two-port Gigabit Ethernet module priced at $3,950.
- **Cabletron** will announce a variety of wide-area network links for its SmartSwitch Router line of Gigabit Layer 3 switches. The Rochester, N.H., vendor will unveil 1.544M bit/sec., 45M bit/sec. and a High-Speed Serial Interface that supports up to 52M bit/sec. WAN uplinks for its SmartSwitch Router models 2000, 8000 and 8600. The uplinks should ship in December. Pricing wasn't available.
- **Lucent** in Murray Hill, N.J., will highlight the Cajun P550 Gigabit Routing Switch, which was designed for campus backbones and can support up to 24 Gigabit Ethernet ports, up to 120 10M/100M bit/sec. ports, or up to 60 Fast Ethernet ports. The P550 also routes at up to 18 million packets per second and is available starting at $15,000.

Lucent will also show its two Cajun P220 Gigabit Switches. One model has 24 10M/100M bit/sec. ports and one Gigabit Ethernet port, while the other has seven Gigabit Ethernet ports. Both are shipping with pricing starting at $6,450.

- **NetScout** will unveil AppScout, a tool that gives information systems managers a view of application performance across their enterprise networks. The Westford, Mass., start-up's package displays network and application response utilization, response times, network health and link quality. AppScout starts at $12,500.□

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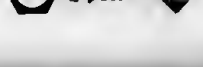

The Back Page

altcw

Dispatches & Passages from the fringes of the electronic frontier

MAGIC CARPET RIDE

Once your mouse takes its first glide over the surface of a MouseRug (*www.mouserug.com*), it will never be satisfied with that old rubber pad again. FiberLok Inc. has applied its fiber-coating technology to make the run-of-the-mill mouse pad look and feel like a hand-woven Persian, Oriental or Native American rug. Cost is $19.95.

Patent watch

Recently issued U.S. patents (number, inventor/assignee, date)

A floor-cleaning robot. It can remove dust and particles, mop and then wax the floor — all while avoiding obstacles. (5,815,880, Minolta Co. Ltd., Osaka, Japan, Oct. 6)

A decision-support system for planning development of a municipality. Using data from geographic information systems, satellite images and government databases, officials can produce a three-dimensional simulation of the city under different development scenarios. (5,818,737, City of Scottsdale, Ariz., Oct. 6)

An automated system for detecting fraudulent transactions resulting from stolen credit cards. A neural network evaluates credit-card transactions to identify ones that don't match the authorized cardholder's usual transaction patterns. (5,819,226, HNC Software Inc., Oct. 6)

Source: MicroPatent (www.micropat.com)

Love me, spender . . .

Featuring the latest technology in casino games and entertainment is the official Elvis slot machine, which boasts a CD-ROM and full-color, LCD video screen. Thanks to International Game Technology in Reno, Nev., bonus-game winners can watch concert footage of the King singing "Don't Be Cruel" and other hits.

THE FIFTH WAVE *by Rich Tennant*

"Games are an important part of my Web site. They cause eyestrain."

E-Mail Rich Tennant at the5wave@ibm.net

Inside Lines

It's the browser, stupid

If there's any doubt left that Netscape Communications plays a key role in the Microsoft antitrust trial that starts this week, check out the list of exhibits state and justice Department lawyers plan to use. According to court documents filed last week, Netscape founder Marc Andreessen's deposition will be cited no fewer than 25 times — the third-most citations among all testimony. The deposition of Mike Homer, a Netscape general manager, comes in fourth with 19 cites. But the citation champs are Scott Vesey, an IT manager at Boeing, with 47, and John Rose, a Compaq senior vice president, with 36.

It pays to increase your buzzword power

New vocabulary picked up at the Gartner Symposium last week in Orlando, Fla.: "NIE," or "neurons in excess," meaning someone who's really smart. It can be used as shorthand in front of the applicant, human resources staff or others who can't stand blunt talk. Also, the "C level" of a company — meaning CIO, CEO, CFO, COO — as in: "We'll never get this project past the C level without more justification." And here's the story buzzword of the week: the "nuclear winter of IT spending," which could hit late next year as year 2000, the euro problem and a recession combine to tank new IT budgets.

Heads down, feet together . . .

With all the challenges facing IT shops, it's good to see some CIOs haven't forgotten what's really important. This week, when health care IT chiefs attend a CIO forum in Carlsbad, Calif., they will choose from workshops on fixing year 2000 problems, recruiting and retaining IT staff, security, managing desktops and call centers — and a half-day golf workshop. According to the College of Healthcare Information Management Executives, the Ann Arbor, Mich., trade group hosting the forum, the golf workshop is already full. Latecomers will have to settle for technology topics.

Promises, promises

After months of Microsoft saying it would offer an interim beta release of Windows NT 5.0 to attendees at last week's Professional Developers Conference in Denver, no beta was delivered. The company claims it promised nothing. Apple Computer did deliver on a promise when it shipped MacOS 8.5 last week and included Sherlock, a search tool that hunts for files across disk drives, networked Macs and Internet sites. But Sherlock was originally promised in 1996. Sun Microsystems managers told reporters last week that Hewlett-Packard was breaking the rules by including Java's standard user interface widgets in HP's version of embedded Java. Sun now says the widgets are broken.

Rumor mill

Forget hunting reform — maybe the Web can rescue the Japanese economy. Japan's Ministry of International Trade and Industry (MITI) will reportedly fund Extensible Markup Language (XML) start-ups to move Japan into the Web Age more quickly. . . . This week Nortel Networks will unveil two low-cost Token Ring switches. The 24-port Centillion 20 Stackable Switch for workgroups should ship in November; the 16-port Token Speed add-on for Centillion 50 and 100 LAN-to-ATM switches ship this month.

At last week's five-day Gartner Group Symposium in Orlando, the hot topic at the cocktail hour was how many times attendees took the Tower of Terror plunge at the Disney/MGM theme park, which Gartner attendees had to themselves Monday night. IT managers also got a ticker-tape greeting by dozens of cheering Gartner staffers holding signs that said "Ga IT" and "You're the best." One bemused year 2000 manager said he hoped the cheering crowd could show up outside his company headquarters the first week of January 2000. News editor Patricia Keefe hopes your news tips and tidbits will show up in her phone mail and E-mail in-box; call her at (508) 820-8183 or send a message to patricia_keefe@cw.com.

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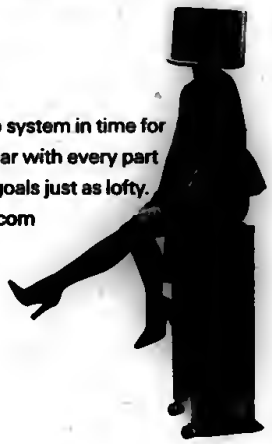

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